THE ILLUSTRATED LONDON ALMANACK

LONDON

PUBLISHED AT THE OFFICE OF THE ILLUSTRATED LONDON NEWS,

198, STRAND.

INTRODUCTION.

The First Illustrated London Almanack was published for the year 1845, and it has appeared annually since that time.

All those divisions of the Almanack for 1846, relating to the Calendar, to Astronomy, and to Science in general, were entrusted to James Glaisher, Esq., F.R.S., F.R.A.S., of the Royal Observatory at Greenwich, and all relating to these subjects, since that time, have been under his superintendence.

The Notes on the Month, on the fourth page of every Month, are by Mrs. Loudon.

It is thought better to give additional information each year than to repeat Tables or Particulars which are the same for several years together; therefore, for explanations, &c., we refer to preceding Almanacks. In this Almanack, at page 52 will be found a very useful Table, shewing the time of the Sun's rising and setting, and the length of the day at all places in Great Britain and Ireland, for every 10th day of the year; and at page 54 will be found a clear description of the heavens, by which means the names of the Stars, &c. may very readily be learned. Both these tables will answer for several years.

ON THE METEOROLOGY OF ENGLAND.

The geographical position of England being distant both from the Equator and the Pole, together with the circumstance of being an island situated with the great European continent on the east, open to extensive oceans on the south-west, the west, and the north, and under the influence of the great cold from the north—all operate to cause the weather to be more variable than in countries on the Continent. In England, in fact, the effects of distant phenomena are registered frequently; and without a well-combined system of uniform observations, extending over the surface of the globe, and deduction of their results, we cannot hope to trace the source of many recorded phenomena, and, in fact, of none except those only of a local nature.

The ever-varying state of the weather of Great Britain has led to much individual enquiry; but it has failed to receive that combination of labour and that *support which is necessary* even to the determining the source to which local disturbances may be traced, and the extent of local laws. Yet, when we consider its practical importance to the physician, to the agriculturist, to the navigator—in fact, to all classes of persons—it seems somewhat strange that Meteorology has met with this neglect.

On the state of the atmosphere, combined in various ways with local circumstances, epidemic complaints seem to depend; and it is highly probable that the present epidemic of cholera is mainly attributable to the peculiarities of the atmosphere which have lately been prevalent, combined with local circumstances. To render our Almanack the most generally useful, we have been anxious to collect the meteorological particulars to the present time, including those when o particular disease existed, as we know that many medical gentlemen, and others, are desirous to elucidate the connexion which may have existed between this disease and the weather.

The following meteorological particulars, derived from the published volumes of the Greenwich observations, and from the meteorological reports furnished by the Astronomer Royal to the Registrar-General, will not only be useful for this and other similar investigations, but will exhibit the full particulars of an English year:—

MEAN MONTHLY READING OF THE BAROMETER AT GREENWICH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	In.	In.	In.	In.	In.	In.	In.	In.	In.
January .	29.702	29.901	29.674	29.891	29.704	29.671	29.768	29.816	29.771
February .	29.697	29.876	29.473	29.498	29.840	29.849	29.782	29.517	30.106
March . .	29.784	29.747	29.758	29.710	29.795	29.655	29.882	29.505	29.915
April . .	29.731	29.914	29.687	30.000	29.696	29.589	29.653	29.589	29.517
May . . .	29.731	29.782	29.664	29.945	29.712	29.779	29.764	29.926	29.766
June . .	29.801	29.901	29.700	29.814	29.775	29.866	29.805	29.642	29.868
July . .	29.716	29.820	29.826	29.753	29.769	29.757	29.924	29.836	29.789
August . .	29.768	29.869	29.819	29.677	29.729	29.777	29.876	29.732	29.841
September.	29.624	29.715	30.017	29.881	29.801	29.824	29.825	29.832	29.767
October .	29.436	29.849	29.604	29.562	29.847	29.516	29.803	29.646	*
November .	29.672	29.599	29.718	29.690	29.575	29.821	29.905	29.785	
December .	29.574	30.007	30.245	29.885	29.658	29.697	29.778	29.807	

These numbers show the exact length of the column of mercury which has been balanced by the atmosphere in every month. The length of this column depends almost wholly upon the amount of air and of water mixed with it in the invisible shape of vapour, and every variation in the volumes of air and water is shown by a corresponding variation in the reading of the barometer. We may briefly remark, that if the column of mercury in a barometer be weighed in pounds, such weight would represent the pressure of a column of atmosphere of the same dimensions reaching from the place of the barometer, to the top of the atmosphere.

If at any time there be a diminution of pressure at one place, there must be a corresponding increase at some other place; the less portion of the atmosphere is not annihilated: for instance, if at any place the decrease of the reading of the barometer be one inch, this implies that one-thirtieth of the whole atmosphere is removed from that place—there must either be an increase at some other place of one inch in the reading of the barometer, or that portion of the atmosphere must be spread over many places; hence one of the necessities of uniform and systematic observations taken simultaneously at many places.

MEAN MONTHLY TEMPERATURE OF THE AIR AT GREENWICH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
January . .	33.6	32.9	39.9	39.1	38.3	43.7	35.1	34.6	40.1
February . .	35.3	40.8	36.0	35.2	32.7	43.9	35.4	43.4	43.2
March . . .	46.2	44.9	42.9	41.5	35.2	43.3	41.0	43.8	42.5
April	47.0	45.2	47.1	51.7	46.3	47.1	45.3	47.6	43.2
May	56.8	53.2	52.2	52.9	49.4	54.6	56.4	59.7	54.0
June	56.4	62.9	56.3	60.7	60.7	65.3	58.0	58.5	57.9
July	57.8	60.2	60.9	61.4	59.8	64.5	65.4	61.5	62.1
August	60.5	65.4	62.1	57.7	57.3	63.2	62.1	58.5	62.9
September . .	58.1	56.4	59.5	56.9	53.6	60.1	54.3	55.8	58.8
October . . .	48.8	45.4	48.0	49.5	50.2	50.5	52.9	51.6	
November . .	42.7	42.8	43.8	44.0	45.8	46.0	46.9	43.8	
December . .	40.5	45.0	43.9	33.0	41.7	32.9	42.8	44.0	

* On reading these numbers, the figures to the right of the point show the parts of an inch; thus, 29.697 is to be read 29 inches, 6 tenths, 9 hundreds, and 7 thousandths of an inch.

MEAN DAILY RANGE OF TEMPERATURE OF THE AIR AT GREENWICH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg	Deg.
January . .	11.1	6.4	7.9	8.7	6.4	7.7	8.8	8.3	10.9
February .	9.1	10.4	7.5	10.5	8.7	8.3	11.6	10.7	12.9
March . .	17.5	10.9	12.4	12.1	11.1	12.7	16.0	14.3	13.8
April . . .	16.5	16.1	15.4	21.0	16.8	13.1	18.3	16.7	16.0
May . . .	21.3	16.7	14.7	18.6	14.2	16.6	21.2	30·5	16.3
June . . .	18.8	22.2	15.2	19 9	18.2	22 5	19.4	17.7	20.6
July . . .	15.6	17.7	15.6	16 2	14.9	17.5	23 3	22.5	22.6
August . .	16.3	20.3	16.4	15.4	14 8	15 5	21.0	18.5	20.2
September .	16.0	12.8	17.4	15 3	15.6	18.0	18.7	20.9	17.5
October . .	11.7	13.2	12 8	12 4	13.3	10.4	1 4.0	16 5	
November .	10.7	7.9	10.2	7.4	10 9	8.0	1 1.4	15.7	
December .	9.4	8.2	6 6	5 4	9.9	10.3	9.7	12.7	

MEAN MONTHLY TEMPERATURE OF EVAPORATION AT GREENWICH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg	Deg.	Deg.	Deg.
January . .		31.9	38.8	38.7	37.4	42.5	34 5	32 6	38.6
February .		38.7	35.0	33.9	31.4	42.2	33 9	41.6	41.4
March . .	44.1	42.9	41.2	40.2	33.4	41.1	37.9	41.6	39 8
April . . .	44 2	41.9	45.0	47.6	43.5	44.8	41.4	44 5	41 5
May . . .	53.6	49.5	50 4	49.1	47.0	51.0	52.1	53 0	49.0
June . . .	52 6	57.4	53.5	55.0	57.5	59.7	53 4	54.4	48.7
July . . .	54.5	55.9	58.2	57.3	56.7	59.8	60.0	57.6	56.2
August . .	57.4	61.2	59.5	54.6	54.7	59.8	59.5	55.2	57.3
September .	55.8	54.8	56.9	54.7	51.5	57.1	51.8	53.2	54.6
October . .	47.1	43.9	46.4	49.3	48.4	48.8	50.9	49.3	
November .	41.5	41.9	42.4	43.1	44.4	44.7	45.6	41.7	
December .	38.3	44.2	43 0	32.2	40.0	31.9	41.6	42 3	

MEAN MONTHLY TEMPERATURE OF THE DEW POINT.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
January . .		30.0	37.3	36.1	35.9	40.8	33.6	31.7	36.4
February .		38 4	33.4	31.8	28.5	39 9	31.0	38.8	38 8
March . .		40.7	38.9	36.6	30.0	38.3	33.5	38.5	36.5
April . . .	40.7	38.3	42 6	44.2	40.6	42.3	37.2	41.4	39 1
May . . .	50.8	46.7	48 8	46.1	44 6	48 0	48.6	48.6	43.9
June . . .	49.2	54.3	51.2	51.6	55.2	56.0	49.8	51,6	48.4
July . . .	51.6	53.2	56.3	54.7	54.4	56 5	56.4	54.6	51.1
August . .	55.0	58.9	57.8	52.3	52.6	57.5	56.1	52.8	53.0
September .	53.7	53.5	54.9	53.2	49.7	54.9	49.7	50 9	51.0
October . .	45.1	42.4	44.7	46 0	46.5	47.2	49.1	47.4	
November .	39.8	40.4	40.9	41.9	42 8	43.1	44 1	38.8	
December .	35.2	43.2	42 0	30.0	37.7	29.4	39.8	40.1	

AMOUNT OF RAIN FALLEN IN EVERY MONTH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
	In.	In.	In.	In.	In.	In.	In.	In.	In.
January . .	2.1	1 0	1.4	2.4	2.4	2.8	1.4	1.2	1 6
February .	1.3	1.1	2.4	2.3	0.9	1.5	1.4	2.6	2.2
March . .	1.4	1.9	0.5	2 9	1.5	0 9	0 8	3.1	0.5
April . . .	1.9	0.4	1.7	0 4	0.6	3.1	1.0	3.4	2.2
May . . .	2.1	2.1	3.8	0.4	2.2	1.5	1.4	0.4	3.9
June . . .	2.7	1 0	1.3	1.8	1.9	0.5	1.5	3 5	0.2
July . . .	3 6	3 0	2.4	2.8	1 9	1.5	0.7	2.0	2.1
August . .	2.2	1 8	3.6	2 0	3.1	4.0	2.1	4.3	0.5
September .	4.0	4 0	0.5	1.2	2.1	1.8	1.6	2.4	3.3
October . .	6.0	1.4	4.3	4.0	1.4	5.1	2.0	3.5	
November .	3 7	4.3	2 3	4 3	2 4	1.5	2.0	1.2	
December .	2.4	0.7	0.4	0.4	2 0	1.1	2 0	2.6	

NUMBER OF DAYS ON WHICH RAIN HAS FALLEN IN EVERY MONTH.

Months.	YEARS.								
	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
January . .	20	7	11	13	14	13	14	9	17
February .	19	11	15	16	9	7	11	19	10
March . .	13	14	7	17	9	14	6	21	8
April . . .	15	6	15	5	12	16	11	23	19
May . . .	12	14	23	8	20	8	12	3	15
June . . .	9	6	15	10	13	5	10	20	5
July . . .	18	14	14	13	19	10	4	18	12
August . .	15	8	12	11	17	11	11	29	3
September .	14	17	6	9	10	7	11	14	15
October . .	25	6	22	18	8	20	13	24	
November .	14	20	20	16	18	8	10	12	
December .	18	9	10	9	13	10	11	14	

As Meteorology affects all classes in every condition of life—the agriculturist the mariner, the invalid—it is particularly to the benefit of these individuals that the labour of the meteorologist is directed, and with this view he must work untiringly onward. If epidemics are produced by atmospheric causes, it is to the successful cultivation of medical-meteorology alone we must look for guidance against them and the mitigation of their virulence, and thus improve the public health and lessen the individual suffering of the invalid.

ON THE CALENDAR.

THE PRINCIPAL ARTICLES OF THE CALENDAR, FOR THE YEAR OF OUR LORD 1850.

	Gregorian, or New Calendar.	Julian, or Old Calendar.
Dominical Letter	F	A
Golden Number	8	8
Roman Indiction	8	8
Solar Cycle	11	11
Epact	17	28

(For remarks upon these articles, see the Almanack for the year 1847.)

CORRESPONDENCE OF THE YEAR 1850 WITH ANCIENT ERAS.

Being, till September 6th, the latter part of the 5610th, and from September 7th the beginning of the 5611th year since the creation of the world, according to the Jews.

Being the 6563rd year of the Julian Period.

Being the 2603rd year since the Foundation of Rome (according to Varro).

Being the 2597th year since the era of Nabonassar, which has been assigned to Wednesday, the 26th of February, of the 3967th year of the Julian Period, which corresponds, according to chronologists, to the 747th, and, according to astronomers, to the 746th year before the birth of Christ.

Being the 2626th year of the Olympiads, or the second year of the 657th Olympiad will begin in July, 1850, if we fix the era of the Olympiads at 775¼ years before Christ, or at or about the beginning of July of the year 3938 of the Julian Period.

Being the latter part of the 1266th, and the beginning of the 1267th year (of twelve lunations) since the Hegira, or flight of Mahomet, which it is generally supposed took place on the 18th of July, in the year 622 of the Christian era. The year 1266 commenced on the 16th of November, 1849, and ends on the 5th of November, 1850.

CALENDAR OF THE JEWS FOR THE YEAR 1850.

5610.	1849.	NEW MOONS AND FEASTS.
Tebeth .. 1	December .. 16	Rosh Hodesh, or New Moon
„ .. 10	„ .. 25	Fast: Siege of Jerusalem
	1850.	
Schebat .. 1	January .. 14	New Moon
Adar .. 1	February .. 13	New Moon
„ .. 13	„ .. 25	Fast of Esther
„ .. 14	„ .. 26	Feast of Purim*
„ .. 15	„ .. 27	Schuschan Purim
Nisan .. 1	March .. 14	New Moon
„ .. 15	„ .. 28	Beginning of the Passover*
„ .. 16	„ .. 29	Second Feast, or morrow of Passover*
„ .. 21	April .. 3	Seventh Feast*
„ .. 22	„ .. 4	End of the Passover
Ijar .. 1	„ .. 13	New Moon
„ .. 18	„ .. 30	Lag Beomer
Sivan .. 1	May .. 12	New Moon
„ .. 6	„ .. 17	Feast of Weeks of Pentecost*
„ .. 7	„ .. 18	Second Feast*
Tamuz .. 1	June .. 11	New Moon
„ .. 17	„ .. 27	Fast for the taking of the Temple*
Ab .. 1	July .. 10	New Moon
„ .. 9	„ .. 18	Fast for the burning of the Temple*
Elul .. 1	August .. 9	New Moon
5611.		
Tisri .. 1	September .. 7	Feast for the New Year*
„ .. 2	„ .. 8	Second Feast for the New Year*
„ .. 3	„ .. 9	Fast of Gedaliah
„ .. 10	„ .. 16	Fast: Reconciliation, or Atonement*
„ .. 15	„ .. 21	Feast of the Huts or Tabernacles*
„ .. 16	„ .. 22	Second Feast of the Huts*
„ .. 21	„ .. 27	Feast of Palms or Branches
„ .. 22	„ .. 28	End of Hut, or Congregational Feast*
„ .. 23	„ .. 29	Rejoicing for the discovery of the Law*
Marchesvan 1	October .. 7	New Moon
Kislev .. 1	November .. 6	New Moon
„ .. 25	„ .. 30	Consecration of the Temple
Tebeth .. 1	December .. 6	New Moon
„ .. 10	„ .. 15	Fast for the Siege of Jerusalem
	1851.	
Sebat .. 1	January .. 4	New Moon

The Anniversaries marked with an asterisk (*) are *to be* strictly observed.

The Jewish Year generally contains 354 days, or 12 Lunations of the Moon; but, in a cycle of 19 years, an intercalary month (Veadar) is 7 times introduced, for the purpose of rendering the average duration of the year quite or nearly correct.

MOHAMMEDAN CALENDAR FOR THE YEAR 1850.

Year.	Names of the Months.			Month begins.
Hegiri; 1266.	Safar	„	„	December 17, 1849.
„ „	Rebia I	„	„	January 15, 1850.
„ „	Rebia II	„	„	February 14, „
„ „	Gomedhi I	„	„	March 15, „
„ „	Gomedhi II	„	„	April 14, „
„ „	Rejeb	„	„	May 13, „
„ „	Scheban	„	„	June 12, „
„ „	Ramedan	(Month of Fasting)	„	July 11, „
„ „	Schewale	(Bairam)	„	August 10, „
„ „	Dsu'l-kâdah	„	„	September 8, „
„ „	Dsu'l-hejjah	„	„	October 8, „
Hegiri; 1267.	Moharrem 1	„	„	November 6, „
„ „	Safar 1	„	„	December 6, „
„ „	Rebia	„	„	January 4, 1851.

(For remarks on the Mohammedan year, see the Almanack for the year 1848.)

SIGNS OF THE ZODIAC.

Spring Signs	1 ♈ Aries	Autumn Signs	7 ♎ Libra
	2 ♉ Taurus		8 ♏ Scorpio
	3 ♊ Gemini		9 ♐ Sagittarius
Summer Signs	4 ♋ Cancer	Winter Signs	10 ♑ Capricornus
	5 ♌ Leo		11 ♒ Aquarius
	6 ♍ Virgo		12 ♓ Pisces

FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, &c.

Epiphany	Jan. 6	Birth of Queen Victoria ..	„ 24
Septuagesima Sunday ..	„ 27	*Trinity Sunday*	„ 26
Martyrdom of King Charles I.	„ 30	Restoration of King Chas. II.	29
Quinquagesima—Shrove Sun.	Feb. 10	*Corpus Christi*	„ 30
Ash Wednesday	„ 13	Accession of Queen Victoria	June 20
Quadragesima—1st Sunday in Lent	„ 17	Proclamation	„ 21
		St. John Baptist—Midsummer Day	„ 24
St. David	March 1		
St. Patrick	„ 17	Birth of Dowager Queen Adelaide	Aug. 13
Palm Sunday	„ 24		
Annunciation—Lady Day	„ 25	St. Michael—Michaelmas Day	Sep. 29
Good Friday	„ 29	Gunpowder Plot	Nov. 5
EASTER SUNDAY	„ 31	Birth of Prince of Wales ..	„ 9
Low Sunday	April 7	Birth of Prince Albert ..	„ 26
St. George	„ 23	St. Andrew	„ 30
Rogation Sunday	May 5	*1st Sunday in Advent* ..	Dec. 1
Ascension Day—Holy Thursday	„ 9	St. Thomas	„ 21
Pentecost—Whit Sunday ..	19	Christmas Day	„ 25

BEGINNING OF THE SEASONS, 1850.

			D.	H.	M.	
The Sun enters	Capricornus	(Winter begins)	1849, Dec. 21	9	42	P.M.
„	Aries	(Spring begins)	1850, March 20	11	3	P.M.
„	Cancer	(Summer begins)	„ June 21	8	0	P.M.
„	Libra	(Autumn begins)	„ Sept. 23	10	0	A.M.
„	Capricornus	(Winter begins)	„ Dec. 22	3	38	A.M.

DURATION OF THE SEASONS, AND THE YEAR 1850.

The Sun will be in the	Winter signs	89 Days	1 Hour	21 Minutes
„	Spring „	92 „	20 „	57 „
„	Summer „	93 „	14 „	0 „
„	Autumn „	89 „	17 „	38 „

So that the period of Summer is 4 days, 12 hours, and 39 minutes longer than that of Winter; 17 hours and 3 minutes longer than that of Spring; and 3 days, 21 hours, and 22 minutes longer than that of Autumn.

	D.	H.	M.		o	′	″
The Sun will be on the Equator and going N. 1850, March	20	11	3	P.M., his declin. being	0	0	0
The Sun will reach his extreme N. declin. at 1850, June	21	8	0	P.M., his declin. being	23	27	25
The Sun will be on the Equator, and going S. 1850, Sept.	23	10	0	A.M., his declin. being	0	0	0
The Sun will be at his extreme S. declination 1850, Dec.	22	3	38	P.M., his declin. being	23	27	25

The Sun will be North of the Equator (Spring and Summer) 186 days 10 hours 57 minutes.

The Sun will be South of the Equator (Winter and Autumn) 178 days 18 hours 59 minutes.

The length of the Tropical Year, commencing at the Winter Solstice 1849, and ending at the Winter Solstice 1850, is 365 days 5 hours 56 minutes.

ASTRONOMICAL SYMBOLS AND ABBREVIATIONS EXPLAINED.

⊙ The Sun	♅ Iris	° Degrees
● New Moon	♆ Astrea	′ Minutes of Arc
☽ First Quarter of Moon	⚘ Flora	″ Seconds of Arc
○ Full Moon	☿ Metis	D. Days
☾ Last Quarter of Moon	♃ Jupiter	H. Hours
☿ Mercury	♄ Saturn	M. Minutes of Time
♀ Venus	♅ Uranus	S. Seconds of Time
⊕ or ♁ The Earth	♆ Neptune	☉ Sunday
♂ Mars	☊ Ascending Node	☽ Monday
⚶ Vesta	☋ Descending Node	♂ Tuesday
⚵ Juno	N. North	☿ Wednesday
⚴ Pallas	E. East	♃ Thursday
⚳ Ceres	S. South	♀ Friday
⚲ Hebe	W. West	♄ Saturday

The Symbol ☌ Conjunction, or having the same Longitude or Right Ascension.
„ □ Quadrature, or differing 90° in Longitude or Right Ascension.
„ ☍ Opposition, or differing 180° in Longitude or Right Ascension.

(For explanation of Astronomical terms, see Almanack for the year 1848.)

LAW TERMS, 1850.

As Settled by Statutes 2 George IV., 1 William IV., cap. 70, s. 6 (passed July 23rd, 1830), and 1 William IV., cap. 3, s. 2 (passed December 23rd, 1830).

	Begins January 11	Ends January 31
Hilary Term		
Easter Term	„ April 15	„ May 8
Trinity Term	„ May 2	„ June 12
Michaelmas Term	„ Nov. 2	„ Nov. 25

UNIVERSITY TERMS, 1850.

OXFORD.

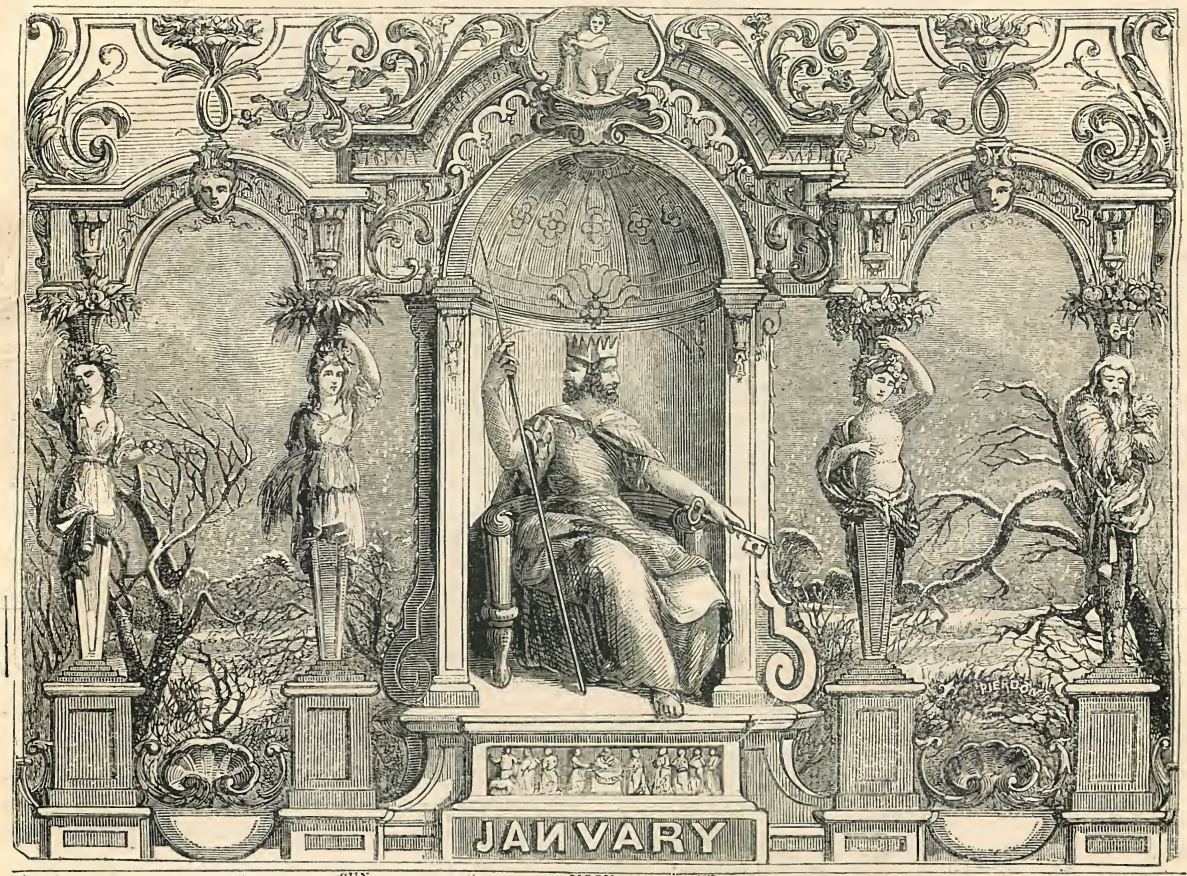
TERMS.	BEGINS.	ENDS.
Lent	January 14	March 24
Easter	April 10	May 18
Trinity	May 22	July 6
Michaelmas	October 10	December 17

The Act, July 2.

CAMBRIDGE.

TERMS.	BEGINS.	DIVIDES.	ENDS.
Lent	Jan. 13	Feb. 16, Noon	March 22
Easter ..	April 10	May 23, Noon	July 5
Michaelmas ..	Oct. 10	Nov. 12, Midnight	Dec. 16

The Commencement, July 2.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'Clock.	SUN. Height above horizon.	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning.	MOON. Height above horizon.	MOON. Sets. Morning.	Moon's Age.	HIGH WATER at London Bridge. Morning.	HIGH WATER at London Bridge. Afternoon	Day of the Year
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.		H. M.	H. M.	
1	Tu	*Circumcision*	8 8	3 51	15½	4 0	8 9	2 31	54	10 1	18	3 45	4 10	1
2	W	Length of day 7h. 53m.	8 8	4 19	15¼	4 1	9 25	3 28	50¼	10 35	19	4 35	5 0	2
3	Th	Day breaks 6h 3m A M.	8 8	4 47	15	4 2	10 40	4 20	46	11 2	20	5 20	5 50	3
4	F	Twilight ends 6h 6m P.M.	8 8	5 15	15¼	4 3	11 50	5 9	41¼	11 28	21	6 15	6 35	4
5	S	Length of night 16h 4m	8 8	5 42	15½	4 4	Morning.	5 57	37	11 53	☾	7 0	7 25	5
6	S	*Epiphany*	8 7	6 8	16	4 6	1 0	6 43	32½	Afternoon	23	7 55	8 25	6
7	M	Plough Monday	8 7	6 34	16¼	4 7	2 7	7 28	28½	0 40	24	9 0	9 35	7
8	Tu	*Lucian.* Fire In-	8 6	7 0	16¼	4 8	3 14	8 14	24¼	1 8	25	10 10	10 44	8
9	W	surance due	8 6	7 25	16½	4 9	4 15	8 59	22½	1 37	26	11 20	11 50	9
10	Th	Alpha Arietis souths 6h 39m P.M.	8 5	7 50	16½	4 10	5 15	9 46	20½	2 13	27	No Tide.	0 20	10
11	F	Hilary Term beg.	8 5	8 14	16½	4 12	6 10	10 33	19¼	2 54	28	0 45	1 10	11
12	S		8 4	8 37	16¾	4 14	7 1	11 21	19	3 42	29	1 30	1 50	12
13	S	1st S. aft Epiph.	8 3	9 0	17	4 15	7 46	Afternoon	19½	4 34	○	2 10	2 25	13
14	M	Ox. Term begins	8 2	9 23	17¼	4 17	8 25	0 56	21¼	5 32	1	2 45	3 0	14
15	Tu	Alpha Ceti souths 7h 52m P.M.	8 1	9 43	17½	4 19	8 58	1 42	23½	6 33	2	3 20	3 35	15
16	W	Bat. of Cor. 1809	8 0	10 5	17½	4 20	9 28	2 28	26½	7 37	3	3 50	4 10	16
17	Th	Pleiades south 7h 52m P.M.	7 59	10 25	17¾	4 21	9 53	3 13	30¼	8 42	4	4 25	4 40	17
18	F	*Prisca.* Old T. D.	7 58	10 45	18	4 23	10 17	3 58	34¼	9 50	5	4 55	5 15	18
19	S	Aldebaran souths 8h 32m P.M.	7 57	11 3	18¼	4 24	10 39	4 43	38½	10 59	6	5 35	5 50	19
20	S	2d S. aft Epiph.	7 56	11 21	18½	4 26	11 3	5 30	43	Morning.	7	6 10	6 30	20
21	M	*Agnes*	7 55	11 38	18¾	4 28	11 28	6 18	47¼	0 9	☽	6 55	7 20	21
22	Tu	*Vincent*	7 54	11 55	18¾	4 30	11 59	7 10	51¼	1 21	9	7 45	8 15	22
23	W	Day inc. 54m.	7 53	12 10	19	4 32	Afternoon	8 5	54½	2 37	10	8 50	9 30	23
24	Th	Capella souths 8h 51m P.M.	7 52	12 25	19¼	4 33	1 12	9 4	57	3 50	11	10 4	10 45	24
25	F	*Convers. St. Paul*	7 51	12 39	19¼	4 34	2 4	10 5	57¾	5 2	12	11 25	At Midnight.	25
26	S	Rigel souths 8h 41m P.M.	7 50	12 52	19¾	4 36	3 8	11 8	57¾	6 7	13	No Tide.	0 30	26
27	S	Septuagesima	7 49	13 4	20	4 38	4 19	Morning.	—	7 4	14	0 59	1 30	27
28	M	Length of day 8h 52m	7 48	13 16	20¼	4 40	5 38	0 10	55½	7 51	●	1 54	2 20	28
29	Tu	Beta Tauri souths 8h 42m P.M.	7 46	13 27	20¼	4 42	6 56	1 10	52¼	8 26	16	2 47	3 15	29
30	W	K. Chas. I. Mar.	7 45	13 37	20¾	4 44	8 16	2 6	48¼	9 2	17	3 35	4 0	30
31	Th	Hilary Term ends	7 43	13 45	21¼	4 46	9 30	2 59	43½	9 29	18	4 20	4 40	31

DURATION OF MOONLIGHT.

Before Sunrise. O'Clock. 2h. 4h. 6h. — After Sunset. O'Clock. 6h. Sh. 10h.

JANUARY.

The Sun is situated south of the Equator, or he has south declination, and is in the sign Capricornus (the Goat) till the 20th, having been in that sign 29 days, 10 hours, 38 minutes. On this day, at 8h. 20m. A.M., he enters the sign Aquarius (the Water-bearer).

On the 1st day his distance from the earth is 93,408,000 miles, being the least in the year. He rises on the 1st at 3° S. of the S.E. by E.; on the 16th, at the S.E. by E.; and on the last day at 5½° S. of the E.S.E. He sets on the same days at 3° S. of the S.W. by W., at the S.W. by W., and at 5½° S. of the W.S.W. points of the horizon respectively.

The Moon is in the constellation Leo till the 3d, on which day she passes into Virgo; on the 7th, into Libra; on the 9th, into Scorpio and Ophiuchus. She is in Sagittarius on the 11th, 12th, and 13th; in Capricornus, on the 14th and 15th; in Aquarius, on the 16th; in Pisces and Cetus, alternately, till the 21st; in Aries, on the 22d; in Taurus, on the 23d and 24th; in Gemini, on the 25th, 26th, and 27th; and in Leo, from the 28th to the end of the month.

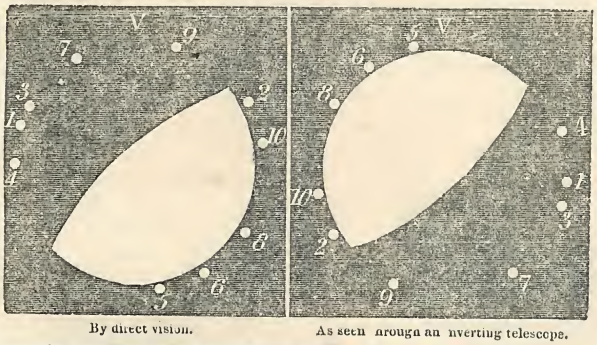
She is above the horizon when the Sun is below, during the morning hours, at the beginning and at the end of the month; and the evening hours, from the middle till nearly the end of the month.

She is situated N. of the Equator till the 4th; is on the Equator at 9h. P.M. on this day; is at her greatest south declination on the 12th; is on the Equator again on the 19th; reaches her extreme N. declination on the 26th; and is a little N. of the Equator at the end of the month.

She is near Jupiter on the 3d, Venus on the 12th, Mercury on the 14th, Saturn on the 19th, Uranus on the 20th, Mars on the 24th, and Jupiter again on the 30th, at midnight.

On January 23d several stars are occulted by the Moon; and early on the morning of the 24th the bright star Aldebaran will be occulted. The disappearances of the stars will take place at the dark limb of the Moon, and their re-appearances at the bright limb. The Moon will be seen to approach Aldebaran for some time before it disappears. The annexed diagrams exhibit the places at which the several phenomena take place, both for telescopes which do, and for those which do not, invert. The diagram in both cases is drawn more especially for the appearance of the Moon at the time of the occultation of Aldebaran; the places marked for the other occultations will, therefore, be understood as having the same relative position to the highest point of the Moon at the times of their occurrence, as seen through the telescope, as they have to the letter V in the diagram.

OCCULTATIONS OF STARS BY THE MOON, JANUARY 23 AND 24, 1850.



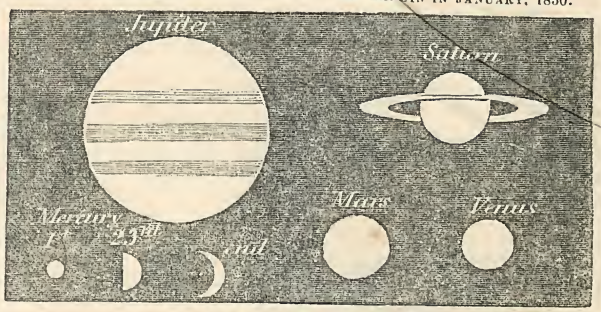
By direct vision. As seen through an inverting telescope.

Gamma Tauri	will disappear at the place marked	D. H. M. 1 at 23 5 4 P.M.	and re-appear at the place marked	D. H. M. 2 at 23 6 6 P.M.
Theta 1 Tauri	,,	3 at 23 9 42 P.M.	,,	6 at 23 10 49 P.M.
Theta 2 Tauri	,,	4 at 23 9 49 P.M.	,,	5 at 23 10 43 P.M.
A Star	,,	7 at 23 10 47 P.M.	,,	8 at 23 11 52 P.M.
Aldebaran	,,	9 at 24 1 32 A.M.	,,	10 at 24 2 1 A.M.

Mercury is in the constellation Sagittarius till the 6th; in Capricornus, from the 6th to the 26th; in Aquarius, on the 27th, 28th, and 29th; and, on the last day, enters Capricornus.

He sets on the 1st, at 4h. 26m. P.M.; on the 5th, at 4h. 46m.; on the 10th, at 5h. 13m.; on the 15th, at 5h. 41m.; on the 20th, at 6h. 6m.; on the 25th, at 6h. 19m.; and on the 31st, at 6h. 8m. P.M. These times are 0h. 26m., 0h. 42m., 1h. 3m., 1h. 22m., 1h. 40m., 1h. 45m., and 1h. 22m. after sunset respectively. He is, therefore, favourably situated after the Sun sets, from the 10th to the end of the month. The best times are from the 20th to the 28th. He sets on the 1st at 5° S. of S.W. by W.; on the 10th at S.W. by W.; on the 23d at W.S.W.; and on the last day at 5° N. of W.S.W. He is moving eastward among the stars till the 28th; is stationary on the 29th; and begins to move westward on the 30th. His path among the stars, during this month, is shown in the diagram in February.

RELATIVE TELESCOPIC APPEARANCE OF THE PLANETS IN JANUARY, 1850.



Scale, 40 seconds of arc to one inch.

Venus is in the constellation Sagittarius to the 25th, and in that of Capricornus from the 26th. She is a morning star throughout the month, but not favourably situated for observation. She rises on the 1st at 7h. 5m.; and on the last day at 7h. 30m. near the S.E. by E. point of the horizon.

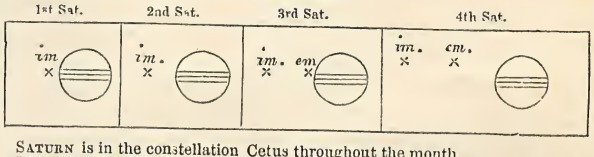
Mars is in the constellation Taurus. He is visible throughout the night, and sets on the 1st at 7h. 21m. A.M.; on the 15th at 6h. 10m. A.M.; and on the last day at 5h. 5m. A.M., near the N.W. point of the horizon.

Jupiter is in the constellation Virgo throughout the month.

He rises on the 1st at 10h. 27m. P.M., and on the last day at 8h. 24m. P.M., midway between the E. and E. by N. points of the horizon; and he sets after the Sun rises.

Jupiter's Satellites.—Several immersions of the 1st, 2d, and 3d Satellites, and an emersion of the 3d, and another of the 4th, take place. The relative position of the Satellite to Jupiter at the instant of the eclipse is shown in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Cetus throughout the month.

He is an evening star, and sets at a point a little S. of W. at 11h. 23m. P.M. on the 1st, and at 9h. 37m. P.M. on the last day. He souths at an altitude of 37°½ nearly.

Uranus is in the constellation Pisces throughout the month.

He sets near the W. by N. on the 1st, at 1h. 28m. A.M., and on the last day at 11h. 29m. P.M. He souths on the 15th, at 5h. 45m. P.M., at an altitude of 46¾°.

Neptune sets on the 1st at 8h. 43m. P.M.; on the 15th at 7h. 51m. P.M.; and on the last day at 6h. 51m. P.M., midway between the W. by S. and the W.S.W. points of the horizon.

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Morning.	Mars. Afternoon	Jupiter. Morning.	Saturn. Afternoon	Neptune Afternoon
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 39	11 0	10 36	4 54	5 27	3 37
6	0 54	11 8	10 10	4 35	5 8	3 18
11	1 9	11 16	9 46	4 15	4 50	2 59
16	1 20	11 23	9 24	3 55	4 31	2 40
21	1 27	11 31	9 3	3 35	4 13	2 21
26	1 22	11 38	8 43	3 15	3 55	2 2
31	1 3	11 44	8 25	2 54	3 37	1 42

JUPITER'S SATELLITES.

Eclipses of

1st Sat. Immersion.			3rd Sat. Im. I.		Emer. E.
D.	H.	M.	D.	H.	M.
5	2	6 A.M.	4	2	27 A.M. E.
12	3	59 A.M.	11	3	5 A.M. I.
19	5	52 A.M.	11	6	24 A.M. E.
21	0	21 A.M.	18	7	2 A.M. I.
28	2	14 A.M.			

2nd. Sat.			4th. Sat.		
10	0	43 A.M.	18	4	12 A.M. I.
17	3	18 A.M.			
24	5	53 A.M.			

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
45 Leonis	6	2 6 30 A.M.	Dark	7° N. &
		2 7 25 A.M.	Bright	89° N.
Xi 2 Ceti	4	21 5 4 P.M.	Bright	22° N. &
		21 5 50 P.M.	Dark	90° N.
f Tauri	5	22 9 57 P.M.	Bright	10° N. &
		22 10 52 P.M.	Dark	90° N.
115 Tauri	5	24 8 16 P.M.	Bright	9° N. &
		24 9 29 P.M.	Dark	74° N.

TIMES OF CHANGES OF THE MOON.

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

Last Quarter	5D.	8H.	37M.	A.M.
New Moon ..	13	11	19	A.M.
First Quarter	21	9	40	A.M.
Full Moon .	28	0	51	A.M.
Apogee	12	8		A.M.
Perigee ..	27	4		A.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination South	Venus. Right Ascension	Venus. Declination South.	Mars. Right Ascension	Mars. Declination North.	Jupiter. Right Ascension	Jupiter. Declination North.	Saturn. Right Ascension	Saturn. Declination South.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′
1	19h. 22m	24° 17′	17h. 44m	23° 10′	5h. 21m	26° 29′	11h. 36m	3° 57′	0h. 11m	1° 26′	1h. 24m	8° 10′	22h. 20m	11° 11′
6	19 57	22 53	18 11	23 24	5 15	26 25	11 37	3 56	0 12	1 19	1 24	8 11	22 20	11 7
11	20 31	20 50	18 38	23 21	5 11	26 20	11 37	3 58	0 13	1 11	1 24	8 12	22 21	11 4
16	21 3	18 14	19 6	22 59	5 8	26 14	11 36	4 2	0 14	1 1	1 24	8 13	22 21	11 0
21	21 29	15 21	19 33	22 19	5 6	26 10	11 36	4 7	0 15	0 51	1 24	8 15	22 22	10 57
26	21 44	12 43	19 59	21 23	5 6	26 6	11 35	4 15	0 17	0 41	1 25	8 18	22 22	10 54

JANUARY.—SOLE FISHING.

NOTES ON NATURAL HISTORY.—JANUARY.

THE common wren, "Kitty wren" as the bird is familiarly called by children, is one of the few of the feathered race which remain near dwelling-houses nearly all the year. Like its companion, the robin, it seems quite indifferent to the cold; and it hops about as gaily when frost and snow are on the ground, as in the brightest days of summer. The female is very particular about her nest: sometimes, when she has half finished it, she appears to take a dislike to the spot; and, after surveying it carefully, and hopping from post to tree, and from tree to rail, and holding her little head first on one side and then on the other, as if she were weighing all the advantages and disadvantages of the place, she seems finally to make up her mind, and either sets to work to finish her nest out of hand, or she flies off to some more convenient situation, where she begins a new one. Wherever the nest may be placed, the wren is never satisfied with its situation unless it is well sheltered from the rain; and on this account she always chooses a nook under the thatch, the cavity in a hollow tree, the projecting bank of a hedge, a hole in a hayrick, or some similarly protected place. The material used in building the nest is generally that which is nearest at hand, and, of course, differs in different situations; one that was built near a schoolroom being actually constructed in great part of the scrapings and feathers of writing quills! The wren is generally very desirous to conceal her nest; and when she has brought a bundle of moss almost as large as herself, she will hop about from branch to branch, carrying her load with her, "anxiously waiting for some slow-walking passenger to move away before she ventures to approach the spot where the nest is in progress." Mr. Knapp, in his "Journal of a Naturalist," relates, among the stratagems of a wren to conceal her nest from observation, that she had formed a hollow space in the thatch inside a cow-shed, in which she had placed her nest by the side of a rafter, and finished it with her usual neatness; but, lest the orifice of the cell should engage attention, she had negligently hung a ragged piece of moss on the straw-work, concealing the entrance and apparently proceeding from the rafter; and so perfect was the deception, that it would not have been noticed, had not the bird betrayed her own secret by darting out. When the wren is sitting, if she sees any one approaching her, she gives utterance to a peculiar cry of rage, which sounds like "*Check! check!*" and she repeats this many times with vehemence, as though she were scolding outrageously, particularly when the intruder appears frightened and runs away; in which case the wren sometimes follows to a considerable distance, with loud manifestations of anger. The nest is very large in proportion to the small size of the bird, and so deep that the young ones are kept almost in darkness. The young are very numerous, as many as sixteen having been found in one nest; and both their number and the darkness of their abode have been alluded to by Grahame, in his poem on the birds of Scotland:—

COMMON WREN.

> The numerous progeny, claimants for food
> Supplied by two small bills, and feeble wings
> Of narrow range; supplied—ay, duly fed—
> Fed in the dark, and yet not one forgot.

The wren, in England, is generally kindly treated, even by boys; but, in Ireland, hunting the wren is a favourite pastime on Christmas Day. The hunting is performed with two sticks, one of which is used to beat the bushes, and the other to throw at the bird. Mr. Yarrell mentions that "it was the boast of an old man who died at the age of a hundred, that he had hunted the wren for the last eighty years, on Christmas Day." On St. Stephen's Day (December 26th) the children used to exhibit the slaughtered birds on an ivy-bush, decked with ribbons of various colours, and to carry them about, singing—

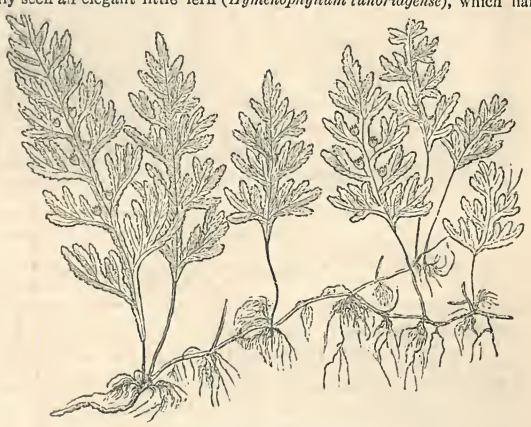
> The wren! the wren! the king of birds!
> The best of all that live in the furze;

and to collect money to bury the wren. In some places the wren itself is hunted on St. Stephen's Day. Happily, this barbarous custom is now abolished, except in some few places in the south of Ireland. The feeling of the children in England with respect to the wren is very different; as, so far from hunting the bird, or wishing to injure it in any way, they have a superstitious feeling that it is unlucky to hurt it, and, consequently, boys that delight in attacking every other kind of bird that falls in their way, respect the wren, and would tremble at the thought of killing one.

In January, vegetation is, of course, suspended; and the only green leaves that appear through the snow are those of evergreens, particularly those of the pine and fir tribe, which, when the snow is partially melted and again frozen, have a very singular and beautiful effect; as the delicate tracery of their branches, gracefully drooping from the weight of the brilliant icicles which hang from them, is so striking as to give the idea of the garden of a fairy palace rather than any object of ordinary occurrence. After a hoar frost, the trees are still more beautiful. Trees that shed their leaves are generally considered to present no beauty in winter; and yet it is impossible to look at the leafless limbs of a large tree in the depth of winter, particularly when the earth is covered with snow, without being powerfully struck with the wonderful difference presented by the tracery of different trees when no longer obscured by the leaves, and the outline of their numerous branches is clearly shown by the white ground beyond. Any one accustomed to trees could never, even in the month of January, mistake an oak for an ash or a poplar. The sturdiness of the oak, and the shortness of its trunk in proportion to its thickness, and the peculiarly rugged character of its branches, mark it as distinctly in the middle of winter as when it is covered with leaves, or even with acorns. The black Italian poplar, on the contrary, has its stem exceedingly long in proportion to its thickness; and its branches, though very numerous, do not extend far from the tree, and are extremely slender, generally producing tufts of small twigs at the extremity. The Lombardy poplar is still more peculiar in its appearance. It grows very high in proportion to the thickness of its stem, and its long slender branches all taper upwards, so as to give the whole tree the shape of a flame. The willow has long, slender, drooping branches. The plane trees generally retain their seed-vessels, which hang like balls on long slender stems from the leafless branches; and these trees are also known by their bark falling off in large plates, so as to look exactly as though the tree had been injured by some mischievous boy. There are some large plane trees in Hyde-park, which often excite indignation from this appearance in the minds of those who are not acquainted with the general habit of the tree. The American plane tree only ripens its seeds in this country in warm summers; and as, when the seed-vessels burst, and the seeds are scattered, each being furnished with a little white feathery plume, they have a cottony appearance, this tree, in North America, is called the cotton-tree. The black Italian poplar has its seeds enveloped in a white cottony down, which falls in such abundance when the seed-vessels burst, as to entitle it also to be called the cotton-tree, as the ground at the foot of the tree is often quite covered over with white cotton, which looks as though it could be used for carding and spinning. The catkin of the black English poplar, on the contrary, is red, and, when it falls, it looks so like the larva of the goat-moth, that children are sometimes afraid to pick it up. The elm, when devoid of leaves, has much less grandeur about it than the oak. The Scotch elm has widely-spreading branches; but those of the English elm are small, and somewhat slender in comparison with the size of the tree. The bark is also rough, particularly that of the variety called the Cornish elm, which is very rough, and has often deep fissures in it. The weeping elm is particularly beautiful; and though a few years ago it was comparatively unknown, it is now becoming common in plantations. The beech is remarkable for the smoothness of its bark; and the birch for its silvery hue, and also for the lightness and elegance of its branches, which, in early spring, are adorned by long feathery catkins, which are almost as ornamental as flowers.

The lower shrubs are seldom ornamental in winter, unless the season is mild, when the *Laurustinus* is covered with flowers. It is singular enough that the *Aúcuba japónica*, though it is a native of Japan, will bear the severest frost uninjured, though the sweet bay and many other similar plants are killed. The *Aúcuba japónica* is interesting in other points of view; and it is remarkable that, though it has been a common garden shrub in this country for the last sixty years, it is only a variety with variegated leaves that has been introduced, and it has never been known to produce fruit in Great Britain. The fruit is said to be a kind of nut, but, from the general appearance of the tree, it appears much more likely that it is a berry. It is nearly allied to the dogwood, and some botanists have supposed it possible that a hybrid might be raised between it and that tree. The holly, the ivy, and many other trees, are ornamental during winter, from their berries; and the *Chimonánthus frágrans* and the *Hamamèlis*, from their flowers. The flowers of the *Chimonánthus* are of a pale straw-colour, with a dark purple spot, and they are delightfully fragrant. The flowers of *Gárrya elliptica* also appear at this season, hanging down in long rows, like Love-lies-bleeding in form, but of a greenish colour.

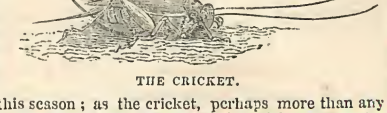
When the ground is covered with snow, few ferns are visible; but, as soon as the snow begins to melt away, the rocks about Tunbridge Wells, and in many other places, are covered with the evergreen kinds; and among them is occasionally seen an elegant little fern (*Hymenophýllum tunbridgénse*), which hangs



HYMENOPHYLLUM TUNBRIDGENSE.

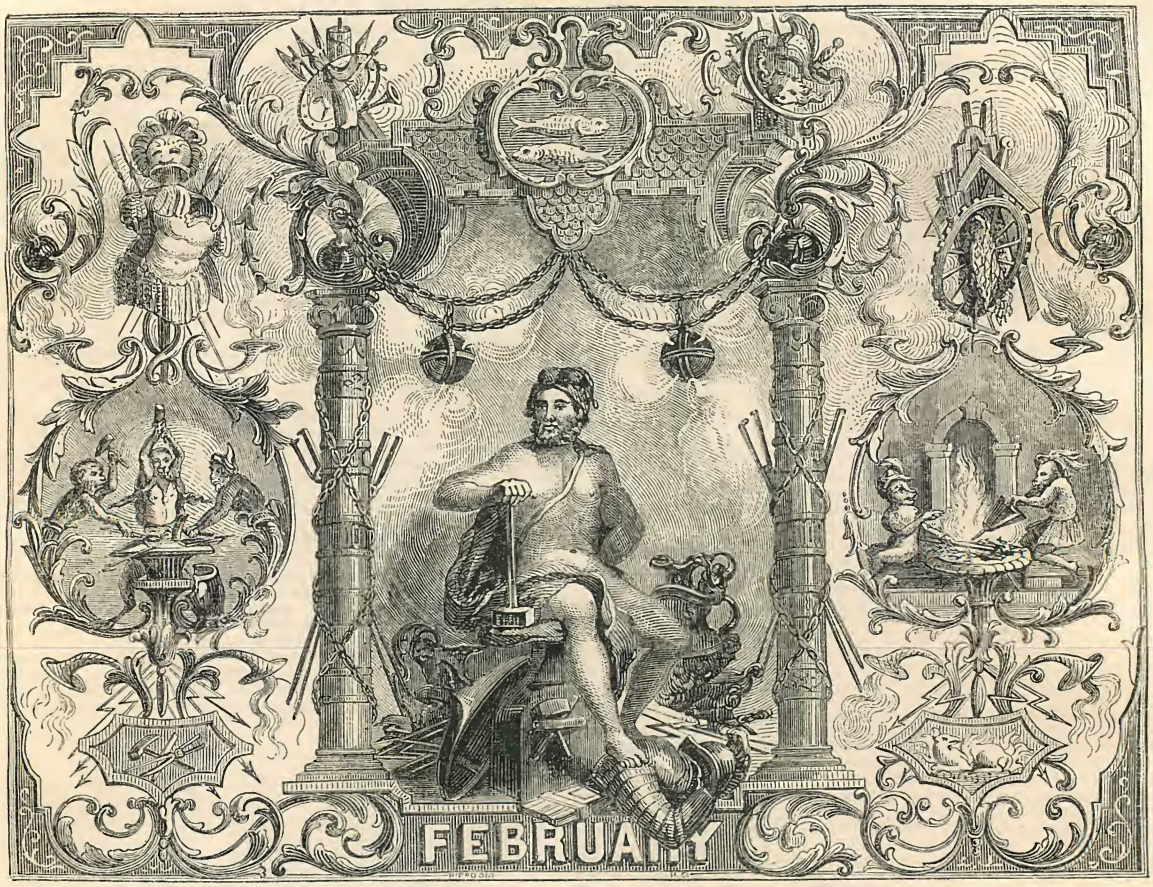
down, "clothing," as Sowerby expresses it, "the shaded, perpendicular faces of dripping rocks and caverns," with its filmy fronds, which lie over one another, "like the half-ruffled plumage of a bird," and form a kind of tapestry of half transparent, shaded green. These ferns are remarkable for the extreme delicacy of their leaves, or fronds, which become brown or shrivelled if exposed to the sun and a drying air even for a few hours, but which are extremely beautiful when quite fresh and moist. The species, though called the Tunbridge fern, is yet found in many other parts of England, and in the south of Scotland.

At this season of the year, the few insects that are still alive are mostly in a torpid state, except the cricket (*Achèta doméstica*), whose merry chirp is still louder in winter than in summer, on account of the additional fires that are required at this season; as the cricket, perhaps more than any other insect, enjoys warmth. When we hear the chirp of a cricket, we naturally suppose that it is a sound uttered from the mouth, but this is by no means the case. The cricket has two wings, which are covered with wing-cases of a leathery consistency, and these wing-cases the cricket rubs against its body with a very brisk motion, whereby it produces its sound. We are told that crickets are used in Africa to promote sleep; but in this country they appear more likely to destroy it, as the noise they make is sometimes so loud as to be extremely disagreeable. It has been remarked that the chirp becomes louder in proportion as the heat increases, and it is extremely difficult to silence the crickets in any way but by putting out the fire.



THE CRICKET.

Most insects die at the commencement of winter, leaving their eggs to continue their species; and these, by a wonderful provision of nature, they lay, late in autumn, on the stems and branches of plants, and not upon the leaves, as they do in summer—the wonderful instinct that has been implanted in them warning them that thus only can they secure the welfare of their progeny. It has also been observed that the eggs which are to be hatched in summer are fixed only very slightly to the leaves on which the young are to feed; but in autumn the eggs which are attached to the trunk and branches are fixed firmly and covered with the greatest care, so as to enable them to resist all the alternations of weather to which it is likely they will be exposed.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'Clock.	SUN. Height above horizon	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning	MOON. Height above horizon	MOON. Sets. Morning.	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 4h. 6h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 6h. 8h. 10h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	F	Length of day 9h 7m	7 41	13 54	21 1/2	4 48	10 44	3 49	39	9 51		19		5 5	5 25	32
2	S	*Purifi.* Cand. D.	7 40	14 1	21 1/4	4 49	11 53	4 37	34 1/2	10 20		20		5 45	6 5	33
3	S	Sexagesima S.	7 38	14 8	22	4 50	Morning.	5 24	30 1/4	10 42		21		6 30	6 50	34
4	M	Pleiades south 6h 40m P.M.	7 36	14 14	22 1/4	4 52	1 1	6 10	26 1/2	11 11		☾		7 15	7 35	35
5	Tu	*Agatha*	7 34	14 19	22 1/2	4 54	2 5	6 56	23 1/2	11 41		23		8 5	8 35	36
6	W	Length of night 11h 33m	7 32	14 23	22 3/4	4 56	3 8	7 43	21 1/4	Afternoon		24		9 10	9 50	37
7	Th	Aldebaran souths 7h 17m P.M.	7 30	14 27	23 1/4	4 57	4 5	8 30	19 3/4	0 53		25		10 25	11 5	38
8	F	Half-Qu. Day	7 29	14 29	23 1/2	4 59	4 56	9 17	19	1 37		26		11 40	No Tide.	39
9	S	Capella souths 7h 48m P.M.	7 27	14 31	23 3/4	5 0	5 43	10 5	19 1/3	2 28		27		0 17	0 44	40
10	S	Quinquagesima	7 25	14 32	24 1/4	5 2	6 24	10 52	20 1/4	3 25		28		1 6	1 30	41
11	M	[or Shrove S.	7 24	14 33	24 1/2	5 4	7 0	11 39	22 3/4	4 23		29		1 50	2 10	42
12	Tu	*Shrove Tuesday*	7 22	14 32	24 3/4	5 6	7 31	Afternoon	25 1/2	5 29		○		2 25	2 45	43
13	W	*Ash W.* Lent b.	7 20	14 31	25 1/4	5 8	7 56	1 11	29	6 34		1		3 0	3 15	44
14	Th	*St. Val.* O. C. D.	7 18	14 29	25 1/2	5 10	8 22	1 57	33	7 40		2		3 35	3 50	45
15	F	Rigel souths 7h 25m P.M.	7 16	14 26	25 3/4	5 12	8 46	2 42	37 1/4	8 50		3		4 5	4 20	46
16	S	Camb. Term div.	7 10	14 23	26 1/4	5 14	9 8	3 28	41 1/2	9 59		4		4 35	4 55	47
17	S	1st Sun. in Lent	7 12	14 19	26 1/2	5 16	9 33	4 15	45 3/4	11 8		5		5 10	5 30	48
18	M	Day inc. 2h.20m.	7 11	14 14	26 3/4	5 18	10 1	5 5	50	Morning.		6		5 50	6 5	49
19	Tu	Length of day 10h 10m	7 9	14 8	27 1/4	5 19	10 31	5 57	53 1/2	0 22		☽		6 30	6 50	50
20	W	*Ember Week*	7 7	14 2	27 1/2	5 21	11 9	6 52	56	1 34		8		7 15	7 40	51
21	Th	Beta Tauri souths 7h 12m P.M.	7 5	13 55	28	5 23	11 52	7 50	57 1/2	2 45		9		8 15	8 55	52
22	F	Day brk. 5h. 9m.	7 3	13 47	28 1/4	5 25	Afternoon	8 50	57 3/4	3 51		10		9 35	10 15	53
23	S	Alpha Orionis souths 7h 34m P.M.	7 1	13 39	28 3/4	5 27	1 55	9 51	56 3/4	4 50		11		11 0	11 45	54
24	S	2nd S. in Lent.	6 59	13 30	29	5 29	3 7	10 50	54	5 40		12		No Tide.	0 20	55
25	M	[*Matthias*	6 56	13 21	29 1/2	5 30	4 26	11 48	48 3/4	6 22		13		0 50	1 20	56
26	Tu	Sirius souths 8h 14m P.M.	6 54	13 11	29 3/4	5 32	5 44	Morning.	—	6 56		●		1 45	2 10	57
27	W	Twilight ends 7h 27m P.M.	6 52	13 0	30 1/4	5 34	7 2	0 43	49 3/4	7 28		15		2 35	2 55	58
28	Th	Castor souths 7h 52m P.M.	6 50	12 49	30 1/2	5 36	8 18	1 35	41 1/2	7 55		16		3 20	3 40	59

FEBRUARY.

THE SUN is situated south of the Equator, and is moving north. He is in the sign Aquarius till the 18th, having been in this sign 29 days, 14 hours, 45 minutes. On the 18th, at 11h. 5m. P.M., he enters the sign Pisces (the Fishes). His distance from the Earth on the 1st day is 93,643,000 miles. He rises on the 11th at the E.S.E.; and on the last day at 1°¼ S. of E. by S. He sets on the same days at the W.S.W., and about 1°¼ S. of the W. by S. points of the horizon.

On the 12th day there will be an Eclipse of the Sun, but it will not be visble in Europe. It will be visible at places situated for some distance both north and south of the Equator, whose longitudes east of Greenwich are less than 160°. It will be central and annular at the island of Madagascar, and parts of the Indian Ocean. The Eclipse begins on the 12th, at 3h. 26m. A.M., at a place whose latitude is 11°¾ S., and whose longitude is 39°¼ E., and ends on the 12th, at 9h. 33m. A.M., at a place whose latitude is 15° nearly north, and longitude 126°¾ east.

The MOON is in Virgo till the 3rd; then in Libra till the morning of the 5th; in Ophiuchus on the 5th and 6th; Sagittarius on the 7th, 8th, and 9th; in Capricornus on the 10th and 11th; in Aquarius on the 12th and 13th; on the boundaries of Pisces and Cetus till the 17th, and skirting Aries and Cetus on the 18th; in Taurus on the 19th and 20th; in part of Orion, crossing the Milky Way, on the 21st; in Gemini on the 22nd; in Cancer on the 23rd and 24th; in Leo on the 25th and 26th; and in Virgo from the 27th to the end of the month.

She is above the horizon when the Sun is below, during the morning hours at the beginning and at the end of the month, and the evening hours from the middle till towards the end of the month.

She is on the Equator on the 1st; at her greatest south declination on the 8th; is on the Equator again on the 15th; at her extreme north declination on the 22nd; and on the Equator a third time this month on the last day.

She is near Mercury and Venus on the 11th; Saturn on the 15th; Uranus on the 16th; Mars on the 21st; and Jupiter on the 27th.

MERCURY is in the constellation Capricornus till the 5th, on which day he passes into Aquarius.

He is an evening star at the beginning, and a morning star at the end of the month. On the 1st he sets at 6h. 3m., being 1h. 15m. after the Sun has set; on the 5th, at 5h. 32m., being 38 minutes after the Sun; and on the 9th, he sets before the Sun. He rises on the 3rd at 7h. 37m.; on the 15th, at 6h. 21m., being 55m. before the Sun; on the 20th, at 6h. 5m., being 1h. 2m. before the Sun. The times of rising from the 18th to the 26th precede the times of sunrising by quantities somewhat more than an hour; and on the 28th he rises at 5h. 52m., being 58 minutes before the Sun. He is favourably situated after sunset during the first three days, and before sunrise between the 18th and the 26th. He sets at the beginning of the month about 6°¾ S. of the W. by S. point of the horizon; and he rises about the middle of the month near the E.S.E. point of the horizon. He is near Venus on the 9th, and the Moon on the 11th; but these phenomena are not well situated for observation. He moves westward amongst the stars till the 17th; is almost stationary till the 20th; and moves eastward from the 21st, as shewn in the annexed diagram.

PATH OF MERCURY FROM JANUARY 1 TO MARCH 31, 1850.

Scale, 24 degrees to one inch.

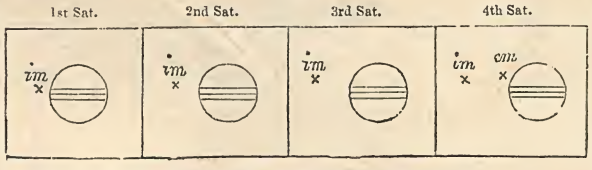
VENUS is in the constellation Capricornus till the 15th, and in that of Aquarius from the 16th. She rises and sets at nearly the same times as the Sun, and is, therefore, unfavourably situated for observation. She moves eastward among the stars; is in inferior conjunction with the Sun on the 7th; is near Mercury on the 9th, the Moon on the 11th, and Saturn on the 15th. Her telescopic appearance is the same as in January.

MARS is in the constellation Taurus throughout the month; on the 16th again touches the Milky Way; and, after this time, he is situated within it. He is visible almost throughout the night, and sets on the 1st, at 5h. 2m. A.M.; on the 15th, at 4h. 16m. A.M.; and on the last day, at 3h. 44m. A.M., near the N.W. point of the horizon. He moves very slowly eastward among the stars; is near the Moon on the 21st; and souths at an altitude of 64°½. His motion and relative position to the stars are shown in the diagram in March.

JUPITER is in the constellation Virgo till about the 11th, when he passes into Leo. He rises on the 1st, at 8h. 20m. P.M.; and on the last day, at 6h. 16m. P.M., at nearly the E. by N. point of the horizon. He is visible throughout the night; souths on the 1st at an altitude of 43°, increasing to 44° on the last day. He moves slowly westward among the stars, and is near the Moon on the 27th. See the diagram, shewing his path in the heavens and relative position to the large stars near him, inserted in May.

JUPITER'S SATELLITES.—The disappearance of the satellite by entering into the shadow of the planet is called an immersion; and its re-appearance at coming out of the shadow is called an emersion. These phenomena, called eclipses of Jupiter's Satellites, generally take place when the Satellite is apparently at some distance from the body of the planet; except at times when he souths at about midnight, when they take place near to his body. When Jupiter souths before midnight, both the immersions and the emersions happen on the eastern side; but when he souths after midnight, they take place on the western side of the planet: and if viewed by means of a telescope which does not invert, such would be their positions; but if an inverting telescope be directed to Jupiter, their appearances will be directly the contrary—the positions of the satellites, which are really on one side, will appear to be on the opposite side. When Jupiter souths after midnight, the immersions only of the first satellite are visible; and when he souths before midnight, the emersions only. It rarely happens that both the immersion and emersion of the second satellite can be observed at the same eclipse, but both phenomena are generally visible of the third and fourth satellites. Jupiter souths this year at midnight on the 12th of March. Several immersions and two emersions of the 4th are visible: the relative position of the satellite to Jupiter, at the instant of the eclipse, is shown in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



SATURN is in the constellation Cetus throughout the month.

He is an evening star, and sets at the W. point of the horizon on the 1st, at 9h. 34m. P.M.; and on the last day, at 8h. 7m. P.M. He souths at an altitude of 38°½ nearly. He is near the Moon on the 15th. For his path in the heavens, see the diagram in September.

URANUS is in the constellation Pisces throughout the month. He sets near the W. by N. on the 1st, at 11h. 24m. P.M.; and on the last day, at 9h. 46m. P.M. He souths on the 15th, at 3h. 46m. P.M., at an altitude of 47°. He moves slowly eastward among the stars, and is near the Moon on the 16th.

NEPTUNE sets on the 1st, at 6h. 48m. P.M.; on the 15th, at 5h. 53m. P.M.; and on the last day, at 5h. 6m. P.M., midway between the W. by S. and the W.S.W. points of the horizon.

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Morning.	Mars. Afternoon	Jupiter. Morning.	Saturn. Afternoon	Neptune. Afternoon
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 57	11 46	8 21	2 50	3 33	1 39
6	0 19	11 52	8 5	2 28	3 15	1 19
11	Morning	11 57	7 49	2 7	2 57	1 0
16	11 3	Aftern.	7 35	1 46	2 39	0 41
21	10 42	0 7	7 21	1 24	2 22	0 22
26	10 31	0 11	7 8	1 2	2 4	0 3
28	10 29	0 13	7 3	0 53	1 57	Morning

JUPITER'S SATELLITES.

Eclipses of

1st Sat. Immersion.	3rd Sat. Im. 1.	3rd Sat. Emer. E.
D. H. M.	D. H. M.	
4 4 7 A.M.	15 10 54 P.M.	I.
5 10 35 P.M.	23 2 52 A.M.	I.
11 6 1 A.M.		
13 0 29 A.M.		
20 2 22 A.M.		
21 8 51 P.M.		
27 4 16 A.M.		
28 10 44 P.M.		

2nd Sat.
3 9 46 P.M.
11 0 21 A.M.
18 2 57 A.M.
25 5 33 A.M.

4th Sat.
3 10 11 A.M. I.
4 1 56 A.M. E.
20 7 49 P.M. E.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
48 Tauri	6	20 0 10 A.M.	Bright	7° N. &
		20 1 4 A.M.	Dark	79° N.
Chi Leonis	4	26 6 18 P.M.	Bright	58° N. &
		26 6 57 P.M.	Dark	13° S.
10 Virginis	6	27 11 9 P.M.	Dark	60° N. &
		27 11 46 P.M.	Bright	13° S.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

	D.	H.	M.		
LAST QUARTER	4	1	18	A.M.	
NEW MOON	12	6	29	A.M.	
FIRST QUARTER	19	8	12	P.M.	
FULL MOON	26	At Noon.			
APOGEE	8	3		P.M.	
PERIGEE	24	11		A.M.	

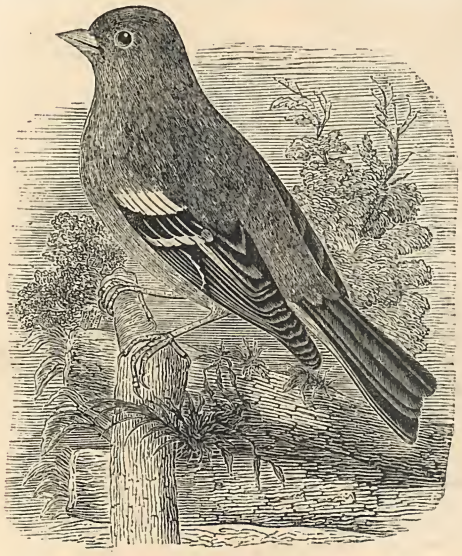
RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	MERCURY. Right Ascension	MERCURY. Declination South.	VENUS. Right Ascension	VENUS. Declination South.	MARS. Right Ascension	MARS. Declination North.	JUPITER. Right Ascension	JUPITER. Declination North.	SATURN. Right Ascension	SATURN. Declination South.	URANUS. Right Ascension	URANUS. Declination North.	NEPTUNE. Right Ascension	NEPTUNE. Declination South.
1	21h. 42m	11° 4′	20h. 31m	19° 54′	5h. 8m	26° 3′	11h. 33m	4°26′	0h. 19m	0° 27′	1h. 25m	8° 21′	22h. 23m	10° 48′
6	21 24	11 33	20 57	18 24	5 11	26 2	11 32	4 36	0 21	0 15	1 26	8 24	22 24	10 44
11	21 1	13 11	21 22	16 41	5 15	26 1	11 30	4 49	0 22	0 2	1 26	8 28	22 24	10 41
16	20 46	14 53	21 47	14 46	5 20	26 1	11 28	5 2	0 24	North.	1 27	8 32	22 25	10 37
21	20 46	16 4	22 11	12 41	5 26	26 2	11 26	5 16	0 26	0 24	1 28	8 37	22 26	10 32
26	20 56	16 33	22 35	10 28	5 32	26 1	11 24	5 31	0 28	0 38	1 29	8 41	22 26	10 28

FEBRUARY.—SHRIMPING OFF THE BLIGH AT THE MOUTH OF THE THAMES.

NOTES ON NATURAL HISTORY.—FEBRUARY.

In February, if the season is mild, some few birds begin to build their nests, and others to hop about and chirp cheerfully, as if feeling a strong sense of enjoyment at the first glimpse of the return of warmth and summer. To those who feel interested in the study of nature, every season has its charm; but, perhaps, at no period of the year has nature so many attractions as when every object around seems first emerging from the sleep of winter. In the depth of winter, when vegetation is quite torpid, the birds are silent; and even when they seem awakened to returning animation by the first breath of spring, their notes are weak, and their song is imperfect, the sounds being apparently uttered with difficulty; and, as the Rev. L. Jenyns observes, "to hear them labouring at a song, and only managing to get out part of it, conveys the idea of some physical impediment, which for awhile they appear unable to surmount." This is particularly observable in the chaffinch (*Fringilla cœlebs*), which generally utters its



CHAFFINCH.

first feeble notes about the first or second week of February, but which does not attain its full song till some weeks afterwards. When its song has attained its full perfection it is generally very regular, and consists of a definite number of notes. The chaffinch sings very early in the morning; and, indeed, in summer, Jenyns tells us, it begins at three o'clock. This bird is sometimes called the bachelor, probably from Linnæus having given it the specific name of *cœlebs*, which signifies a bachelor, because in Sweden and other northern countries the females migrate in the winter to a milder climate, leaving only the male birds behind; and these males must naturally have appeared to Linnæus so solitary that we cannot wonder he calls them bachelors. With us, however, as is observed in the "Journal of a Naturalist," the sexes do not separate at any season of the year, the flocks frequenting our barn-doors and homesteads in winter being composed of both males and females, which are easily distinguished from each other, the male bird being remarkable for the cleanliness and trimness of his plumage, which, without having any great variety or splendour of colouring, is so composed and arranged, and the white on his wings so brilliant, as to render him a very beautiful little creature. The female is as remarkable for the quiet, unobtrusive tintings of dress; and, when she lies crouching on her nest, elegantly formed of lichens from the bark of the apple tree and faded mosses, she would hardly be perceptible but for her little bright eyes that peep with suspicious vigilance from her covert." The same work informs us that in Gloucestershire these birds are generally called "twinks," from their constant repetition of one note resembling that word, when they are alarmed or in danger. The female chaffinch is very careful in building her nest, which is a very elegant one, curiously studded with lichens interwoven with wool, and lined with feathers and hair. She generally chooses the fork of a tree, or the centre of a mass of ivy, but in some cases she fixes her nest simply against the trunk of a tree, and in such a situation that it seems wonderful that the nest is not washed away by the first heavy storm that occurs. When the nest is closely examined it generally excites astonishment, from the neatness of its workmanship; for it is so firm and strong that it is difficult to pull it asunder. In summer the chaffinch lives principally upon insects, but in winter and very early spring it is apt to attack the seeds that are sown for the early vegetables, and also the first flowers of spring: sometimes the snowdrops, winter aconites, and the little red archangel will be found with the petals of their flowers lacerated as soon as they unfold; and sometimes the chaffinch may actually be seen tearing the flowers asunder to get at the pistil or incipient seed-vessel, which it finds at their base.

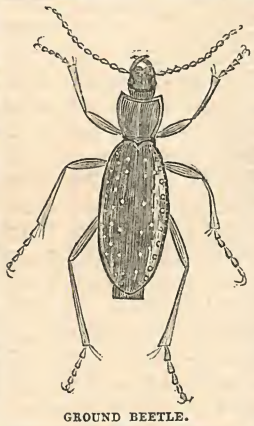
As the month advances, many birds are heard to sing, and among the earliest, after the robin-redbreast and the wren, which may be said to sing all winter, may be mentioned the hedge accentor, or hedge sparrow, the tom-tit, the skylark, the thrush, and the blackbird; and, in short, the melody of the woods may be said to have begun. "To me," says Mr. Waterton, in one of his charming essays, "to me, whom kind Providence has destined to spend the best part of my time in the open air, the song of birds is soothing beyond expression; and whilst I am admiring the beauty of the rising flowers around me, I know no greater addition to my gratification than that of listening to it. How enchanting is it to inspect the early snow-drops, those 'fair maids of February,' whilst the stormcock is pouring forth his newly-acquired notes from the top of a neighbouring elm! and how delightful it is to hear cock-robin's carol on the thorn that affords a shelter to the humble primrose!"

Sweet are the omens of approaching spring,
When gay the alder sprouts her winged leaves;
When tootling robins carol welcomes sing,
And sparrows chelp glad tidings from the eaves.
What lovely prospects wait each wakening hour,
When each new day some novelty displays;
How sweet the sunbeam melts the erceus-flower,
Whose borrow'd pride shines dizen'd in his rays.
Sweet, new-laid hedges flush their tender green;
Sweet peep the arum-leaves their shelter screen;
Ah! sweet is all that I'm denied to share;
Want's painful hindrance holds me to her stall,
But still Hope's smiles unpoint the thorns of Care,
Since Heaven's eternal spring is free from all.—CLARE.

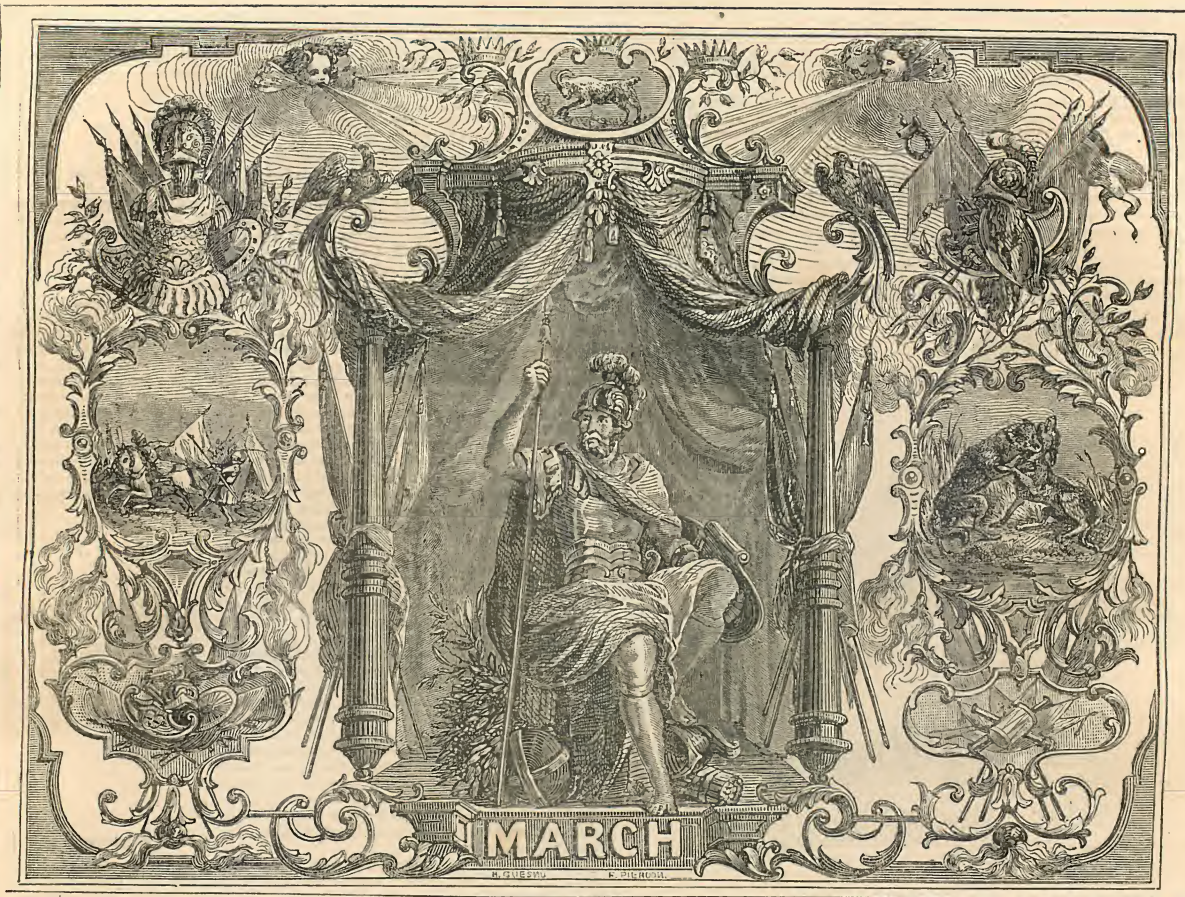
The flowers of early spring are, indeed, most highly prized, not only for their natural beauty, but because they come to us with all the charm of novelty, and as a promise of the further pleasures which are in store for us; and hence we seldom feel so much delight in viewing any of the most gorgeous flowers of summer as we do when we first perceive the graceful form of the snow-drop peeping through the ground, or the bright yellow of the winter aconite, succeeded by the richer yellow striped with brown, and the delicate white striped with pale lilac, of the cloth of gold and Scotch crocuses. These are followed by the primrose, with its pale yellow flowers peeping out from every bank, and the beautiful little white wood anemone, with the golden flowers of the buttercups, and the lesser celandine. But among these flowers, which have been so often mentioned, and whose beauties have been enlarged upon by every author who has written on the spring, there are others which have been passed by comparatively unnoticed, though almost equally common. In the depths of Epping Forest, particularly at High Beach, where the noble trees form avenues which look like the stately aisles of some magnificent Gothic cathedral, may be found a little British plant, which, when it first appears above the ground, which it does in the beginning of February, looks very much like asparagus. Its flowers open about the latter end of February or the beginning of March; and, strange to say, they grow from the centre of the leaves, and are succeeded by bright red berries, which also grow from the middle of the leaves, and which have a most singular appearance, as they seem as if they had dropped there by accident, so unnatural does it appear that they should grow in such a position. This plant is called butcher's broom (*Ruscus aculeatus*), because butchers used formerly to hang bunches of it over their meat to keep away the flies; as, from the hardness of the leaves and their sharp points, which are as prickly as those of the holly, they wound the large flies, which are most injurious to meat, whenever they approach them. In Germany, the plant is called mouse-thorn, because it is used in cupboards and pantries to put over cold meat, butter, and other articles of food, which are occasionally attacked by mice, to keep these little animals away; as, when they have once pricked their noses with the sharp points of the butcher's broom, they never venture near the place again. The botanic name of the plant (*Ruscus*) is derived from two Celtic words, signifying box holly.

BUTCHER'S BROOM.

The warmth of February is seldom sufficient to hatch the eggs of the moths and butterflies, except in some instances where the eggs have been deposited in situations fully exposed to the sun. The water beetles, at the beginning of winter, generally retire to the mud at the bottom of the ponds, where they remain till the frost is all gone. The ground beetles (*Carabus*), on the contrary, generally adhere by their claws to the underside of a stone, which serves for their winter retreat, their backs being next the ground: a strange posture, which, however, is no doubt dictated to them by instinct for some admirable purpose which we do not yet clearly understand, but which, perhaps, may be, as Messrs. Kirby and Spence seem to suppose, intended to defend them from the wet. Sometimes a number of these beetles are found crowded together as if to keep each other warm. In all cases, the ground beetles appear to winter in a perfect state, and in places whence they can easily emerge whenever a few fine days incline them to do so. Thus, they are frequently seen in February, or, in fact, whenever a few warm days have given the first indications of spring. The ground beetles are so called because they are very seldom seen except on the ground. Most of the species, indeed, are incapable of flying, as they have only the rudiments of wings; and those that have wings very rarely make use of them, as they are generally too short and too weak for the purposes of flight. The insects are, however, very active, running away with the greatest quickness when alarmed, and hiding themselves in the ground and under stones. They generally shun the light, coming abroad only in the evening, and then preying voraciously upon other insects, or, when these are not to be procured, on their own species. Whenever one of the ground beetles is injured in any way, or appears feeble or ill, the others are sure to attack him and devour him. When taken in the hand, they eject a drop of very acrid liquor, which has a very strong disagreeable smell, and which burns the hand like caustic, leaving a black or brownish stain which it is very difficult to efface. The grubs of these insects are found generally in rotten wood, and they differ from many other kinds of grubs in having six scaly feet, and remarkably strong jaws, with which they seize any caterpillars that are so unfortunate as to fall in their way. Réaumur, a French naturalist, has given us an account of the voracity of one of these grubs that is perfectly terrific. He says, that with its scaly pincers it will attack a caterpillar, and burying its head in the body, "notwithstanding the writhing of the sufferer, will persevere till the whole is devoured. The largest caterpillar is hardly sufficient for one day's nourishment; and it will eat several in the same day, when they are to be found." These grubs are so gluttonous that when they have an opportunity, they eat so much that the skin appears ready to crack. This inordinate appetite, however, does not always go unpunished; for sometimes when the largest of the grubs are unable to move from repletion, they are attacked by the young and active of their own species, and devoured. After giving such an instance of their barbarity, it is but fair to add, that they are highly respected in France for the good they do in destroying the grub of the cockchafer, a most destructive insect; which, in France particularly, is considered to destroy more plants than nearly all the other insects put together.



GROUND BEETLE.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'Clock.	SUN. Height above horizon.	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning.	MOON. Height above horizon	MOON. Sets. Morning.	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 4h. 5h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 7h. 8h. 10h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	F	*St. David*	6 48	12 37	31	5 37	9 33	2 25	36½	8 16		17		4 0	4 20	60
2	S	*St. Chad*	6 46	12 25	31¼	5 39	10 43	3 14	32	8 45		18		4 40	5 0	61
3	S	3RD S. in LENT	6 44	12 12	31¼	5 41	11 51	4 2	28	9 11		19		5 15	5 35	62
4	M	Length of day 11h 1m	6 42	11 59	32	5 43	Morning.	4 49	24½	9 40		20		5 55	6 15	63
5	Tu	Day breaks 4h 45m	6 40	11 45	32¼	5 45	0 54	5 36	22	10 12		☾		6 35	6 55	64
6	W	Twilight ends 7h 40m	6 38	11 31	32¼	5 46	1 55	6 24	20	10 50		22		7 15	7 45	65
7	Th	*Perpetua*	6 36	11 17	33¼	5 48	2 50	7 12	19¼	11 33		23		8 10	8 50	66
8	F	*O. S. Matthias*	6 34	11 2	33¼	5 50	3 39	7 59	19¼	Afternoon		24		9 30	10 15	67
9	S	Rigel souths 6h 0m P.M.	6 31	10 47	34	5 51	4 22	8 47	20	1 15		25		10 55	11 35	68
10	S	4TH S. in LENT.	6 28	10 31	34¼	5 53	5 0	9 34	21¾	2 14		26		No Tide.	0 10	69
11	M	Beta Tauri souths 6h 2m P.M.	6 26	10 15	34¼	5 55	5 31	10 21	24¼	3 18		27		0 38	1 0	70
12	Tu	*St. Gregory*	6 23	9 59	35¼	5 57	6 0	11 7	27⅓	4 22		28		1 20	1 40	71
13	W	Alpha Orionis souths 6h 23m P.M.	6 21	9 43	35¼	5 58	6 27	11 53	31⅓	5 29		○		2 0	2 20	72
14	Th	Day increased 3h 57m	6 18	9 26	36	6 0	6 50	Afternoon	35⅓	6 39		1		2 35	2 50	73
15	F	Length of night 12h 14m	6 16	9 9	36¼	6 2	7 13	1 25	39¾	7 49		2		3 10	3 25	74
16	S	Sirius souths 7h 3m P.M.	6 13	8 52	36¼	6 4	7 38	2 13	44¼	9 0		3		3 40	3 55	75
17	S	5TH S. in LENT	6 11	8 35	37	6 6	8 5	3 2	48¾	11 4		4		4 15	4 30	76
18	M	[*St. Patrick*	6 9	8 17	37½	6 8	8 34	3 54	52½	11 27		5		4 50	5 5	77
19	Tu	Castor souths at 7h 37m P.M.	6 7	7 59	38	6 10	9 8	4 48	55½	Morning.		6		5 25	5 45	78
20	W	Spring commen.	6 5	7 41	38¼	6 11	9 50	5 44	57¼	0 37		7		6 5	6 30	79
21	Th	*Benedict*	6 3	7 23	38¼	6 12	10 41	6 42	58	1 43		☽		6 50	7 20	80
22	F	Camb. Term ends	6 1	7 5	39¼	6 14	11 41	7 41	57½	2 44		9		7 55	8 35	81
23	S	Ox. Term ends	5 59	6 46	39¼	6 15	Afternoon	8 39	55½	3 35		10		9 20	10 5	82
24	S	PALM SUNDAY	5 57	6 28	39¾	6 17	2 3	9 35	52¼	4 19		11		10 50	11 35	83
25	M	*Annun. Lady D.*	5 54	6 9	40¼	6 18	3 20	10 30	48¼	4 54		12		No Tide.	0 10	84
26	Tu	P. Geo. Will. b.	5 52	5 51	40¾	6 20	4 37	11 22	43¾	5 26		13		0 40	1 6	85
27	W	Procyon souths 7h 12m P.M.	5 50	5 32	41	6 22	5 54	Morning.	—	5 54		●		1 30	1 55	86
28	Th	Maunday Thurs.	5 48	5 13	41½	6 24	7 9	0 13	38¾	6 19		15		2 15	2 40	87
29	F	GOOD FRIDAY	5 45	5 55	41¾	6 26	8 23	1 2	34¼	6 43		16		2 55	3 15	88
30	S	Pollux souths 7h 5m P.M.	5 43	4 36	42¼	6 28	9 33	1 51	29¾	7 11		17		3 35	3 55	89
31	S	EASTER SUNDAY	5 41	4 18	42¾	6 30	10 39	2 39	26	7 38		18		4 13	4 30	90

MARCH.

The Sun is situated south of the Equator till the 20th, and north of the Equator from the 21st. He is in the sign Pisces till the 20th, having been in that sign 29 days, 23 hours, and 58 minutes. On the 20th, at 11h. 3m. P.M., he enters the sign Aries (the Ram), and Spring commences. He rises on the 3d at the E. by S., and on the 23d at the E.; he sets on the same day at the W. by S., and at the W. points of the horizon. On the first day he is 94,190,000 miles distant from the Earth. His times of southing, in common clock time, and his height above the horizon expressed in degrees at the same time, are shown on the Calendar pages in every month.

The Moon is in Virgo on the 1st and 2d; in Libra on the 3d and 4th; in Ophiuchus on the 5th and 6th; in Sagittarius on the 7th and 8th; in Capricornus on the 9th and 10th; in Aquarius on the 11th and 12th; in Pisces on the 13th; moving on the boundaries of Pisces and Cetus on the 15th and 16th, and on those of Cetus and Aries on the 17th; in Taurus on the 18th and 19th; crossing the Milky Way during the evening hours of the 20th, being in part of Orion; in Gemini on the 21st and 22d; in Cancer on the 23d and 24th; in Leo on the 25th and 26th; in Virgo from the 27th to the 30th; and then in Libra till the end of the month.

She is above the horizon when the Sun is below, during the morning hours at the beginning and at the end of the month; and during the evening hours from the 15th to the 26th.

She is south of the Equator from the 1st to the 15th. Her greatest south declination is on the 7th; she is on the Equator on the 15th; is at her extreme north declination on the 21st, and again on the Equator on the 28th, and going south.

She is near Mercury on the 11th; Venus on the 14th; Saturn on the 15th; Uranus on the 16th; Mars on the 21st; Jupiter on the 26th; and Saturn on the 31st.

Mercury is in the constellation Aquarius till the 6th; in Capricornus from the 7th to the 10th; in Aquarius again from the 11th to the 25th; and in Pisces from the 26th.

He is a morning star all the month, and rises on the 1st at 5h. 52m., on the 10th at 5h. 47m., on the 20th at 5h. 39m., and on the last day at 5h. 27m.; these times being 56m., 41m., 26m., and 14m. before the times of sun-rise respectively. He is not very favourably situated for observation. On the 14th, he rises near the E.S.E.; and towards the end of the month, near the E. by S. points of the horizon. He is at his greatest W. elongation on the 5th; and is near the Moon on the 11th. He moves eastward among the stars during the month. (See the diagram in last month, exhibiting his path in the heavens.)

Venus is in the constellation Aquarius till the 4th, and in that of Pisces from the 5th. She is an evening star towards the end of the month, and sets on the 15th at 6h. 14m. P.M., and on the 31st at 7h. 6m. P.M., at the W. point of the horizon. She moves eastward among the stars; is in superior conjunction with the Sun on the 3rd; is near the Moon on the 14th, and Saturn on the 25th. She is not yet favourably situated for observation. The annexed diagram shews her path among the stars, and her relative position to them at different times. Her telescopic appearance is that of a complete circle, of the same dimensions as in January.

Mars is in the constellation Taurus till the 9th, on which day he enters Gemini. He is crossing the Milky Way till the 20th, on which day he is at its W. boundary. He is an evening star, and sets on the 1st at 3h. 41m. A.M.; on the 15th at 3h. 2m. A.M.; and on the last day at 2h. 31m. A.M., midway between the N.W. by W. and the N.W. points of the horizon. He moves eastward among the stars, and is near the Moon on the 21st. His altitude above the horizon when he souths on the 1st is 64°½, and on the last day 64°. The annexed diagram shews his path among the stars.

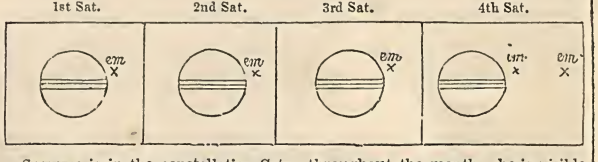
PATH OF MARS FROM JANUARY 1 TO APRIL 30, 1850.

Scale, 12 degrees to one inch

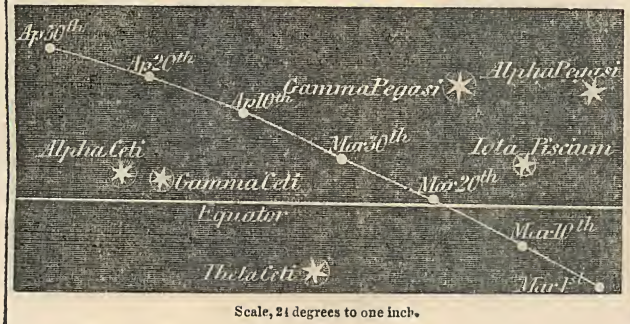
Jupiter is in the constellation Leo throughout the month; he rises before the Sun sets. He sets after the Sun rises till the 18th, at the time of sunrise on the 19th, and before the Sun rises after this day, at the W. by N. point of the horizon. He rises on the 1st at 6h. 11m. P.M., and on the last day at 3h. 53m. P.M. He souths at an altitude of 44°¼ on the 1st, and of 45°⅝ on the last day. He moves slowly westward among the stars, and is near the Moon on the 26th. His motion among the stars during this month is shewn in the diagram in May.

Jupiter's Satellites.—The Immersions of the 1st, 2d, and 3d, and an Emersion of the 2d and another of the 4th are visible. The relative position of the Satellites to Jupiter at the instant of the eclipse is shewn in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



PATH OF VENUS FROM MARCH 1 TO APRIL 30, 1850.



Scale, 24 degrees to one inch.

Saturn is in the constellation Cetus throughout the month; he is visible for a short time after sunset till towards the end of the month, and sets at a point a little N. of W., at 8h. 3m. on the 1st; at 7h. 16m. P.M. on the 15th; and with the Sun on the 30th. He souths at an altitude of 40° nearly. He is near the Moon on the 15th; Venus on the 25th; and is in conjunction with the Sun on the 31st. For his path in the heavens, see the diagram in September.

Uranus is in the constellation Pisces throughout the month; he sets midway between the W. by N. and W.N.W. points of the horizon, on the 1st at 9h. 42m. P.M., and on the last day at 7h. 52m. P.M. He is moving slowly eastward among the stars, and is near the Moon on the 16th.

Neptune rises on the 1st at 6h. 38m. A.M.; on the 15th at 5h. 44m. A.M.; and on the last day at 4h. 42m. A.M.

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN

Days of the Month.	Mercury. Morning.	Venus. Afternoon	Mars. Afternoon	Jupiter. Morning.	Saturn. Afternoon	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	10 29	0 13	7 0	0 49	1 54	11 52
6	10 28	0 17	6 49	0 27	1 36	11 33
11	10 32	0 20	6 37	0 5	1 19	11 14
16	10 38	0 23	6 26	Aftern.	1 1	10 55
21	10 46	0 26	6 16	11 16	0 44	10 36
26	10 56	0 29	6 6	10 54	0 27	10 17
31	11 7	0 32	5 57	10 33	0 9	9 58

JUPITER'S SATELLITES.

Eclipses of

1st Sat. Emersion.	2nd Sat. Im. I. Emer. E.
D. H. M.	D. H. M.
15 4 46 A.M.	7 9 28 P.M. I.
16 11 13 P.M.	15 2 51 A.M. E.
24 1 7 A.M.	3rd Sat.
25 7 36 P.M.	23 9 57 P.M. E.
31 3 1 A.M.	31 1 55 A.M. E.
	4th Sat.
	26 4 11 A.M. I.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
Xi 1 Libræ	6	3 5 10 A.M.	Dark	2° N &
		3 5 37 A.M.	Bright	77° N.
3 Cancri	6	23 1 2 A.M.	Bright	29° N. &
		23 1 54 A.M.	Dark	90° N.
Omicron 1 Cancri		23 11 30 P.M.	Bright	14° N. &
		24 0 34 A.M.	Dark	90° N.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

Last Quarter	5D.	8H.	5M.	P.M.
New Moon ..	13	11	17	P.M.
First Quarter	21	3	58	A.M.
Full Moon ..	27	11	26	P.M.
Apogee	8	8		A.M.
Perigee	24	3		A.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination South	Venus. Right Ascension	Venus. Declination South.	Mars. Right Ascension	Mars. Declination North.	Jupiter. Right Ascension	Jupiter. Declination North.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′
1	21h. 4m	16° 32′	22h. 49m	9° 4′	5h. 37m	26° 1′	11h. 22m	5° 41′	0h. 30m	0° 47′	1h. 29m	8° 44′	22h. 27m	10° 27′
6	21 24	15 58	23 12	6 41	5 45	26 0	11 20	5 56	0 32	1 1	1 30	8 50	22 28	10 23
11	21 47	14 47	23 35	4 12	5 53	25 58	11 18	6 12	0 34	1 16	1 31	8 55	22 29	10 19
16	22 13	13 2	23 58	1 41	6 2	25 54	11 15	6 27	0 36	1 30	1 32	9 1	22 29	10 15
21	22 41	10 44	0 20	North.	6 11	25 47	11 13	6 42	0 39	1 45	1 33	9 7	22 30	10 11
26	23 10	7 55	0 44	3 24	6 21	25 39	11 11	6 56	0 40	2 0	1 34	9 13	22 30	10 7

A MARCH DAY.

NOTES ON NATURAL HISTORY.—MARCH.

The weather in March is generally more capricious than at any other season of the year; as in this month spring and winter appear contending for the victory, and cold winds, accompanied perhaps by frost and snow, are followed by gleams of sunshine, and sometimes by days as hot as those in the middle of summer. Violent storms are also frequent at this season, particularly about the vernal equinox, and for a week or two before and after that season. The storms in England, however, are but trivial compared with those of America; and one which occurred in that country just at the breaking up of winter is so remarkable, that an account of it was published some years ago by Mr. Richard Taylor, of which the following is an abridgement. This *ice-storm* occurred in the year 1832, at Philipsburg, in Pennsylvania. The winter had been remarkably severe, but at the earliest commencement of spring a thaw took place, and in the open clearings all traces of snow suddenly disappeared; the birds began to sing, and the mosquitoes came out of their hiding-places and danced in clusters in the sunshine. At night a heavy rain set in, which descended in torrents, and was accompanied by such a piercing wind that it froze as soon as it touched the trees and the ground, so as to envelope every object in a thick coating of transparent ice. In the morning the scene surpassed all description: the ground looked like an enormous lake frozen quite hard; and the trees all seemed as though they had been formed of glass. The heavy foliage of the hemlock and spruce firs was literally incased in solid masses of ice, and the smallest twig or blade of grass, being surrounded by ice more than an inch thick, resembled the vegetable substances which sometimes occur in masses of crystal. While all was still, the scene was one of glittering magnificence; but when a wind arose it became terrific. The tall trees drooped and swung heavily, weighed down by the masses of solid crystal which the branches had to support, and as these struck against each other, they shivered and sent down avalanches of ice. On the succeeding morning, the limbs of the trees began to give way under such an unusual load. Every where around was seen and heard the crashing of the topmost branches, which fell to the earth with a noise like the breaking of glass, yet so loud as to make the woods resound. As the day advanced, instead of branches, whole trees began to fall; and, during twenty-four hours, the scene which took place was as sublime as can well be conceived. There was no wind perceptible, yet, notwithstanding the calmness of the day, the whole forest seemed in motion—falling, wasting, or crumbling, as it were, piecemeal. Crash succeeded to crash, until at length these became so rapidly continuous as to resemble the incessant discharges of artillery; gradually increasing, as if at first from the irregular firing at intervals of the outposts, to the uninterrupted roar of a heavy cannonade. Pines of one hundred and fifty and one hundred and eighty feet in height came thundering to the ground, carrying others before them. Groves of hemlocks were bent to the ground like reeds; and the spreading oaks and towering sugar maples were uprooted like stubble, and often without giving a moment's warning. Under every tree was a rapidly accumulating *débris* of displaced limbs and branches; their weight increased more than tenfold by the ice, and crushing every thing in their fall with sudden and terrific violence. Altogether, this spectacle was one of indescribable grandeur. The roar, the cracking and rending, the thundering fall of the uprooted trees, the startling unusual sounds and sights produced by the descent of such masses of solid ice, and the suddenness of the crash when a neighbouring tree gave way, all together presented a scene not easily forgotten. Yet all this was going on in a dead calm, except at intervals a gentle breeze from the south-east slightly waved the topmost pines. Had the wind freshened, the destruction would have been still more appalling. It was awful to witness the sudden prostration of oaks of the largest class. These trees were the greatest sufferers; and it seemed remarkable that the deciduous trees should be less able to bear the additional burthen than the heavily laden evergreens. The branches of the oaks rapidly gave way, while the thickly encased foliage of the hemlock spruce fir hung drooping around the stems, upon their long pliant branches, until they appeared like a solid mass, or monumental pillar of ice. The weight of the trees was so prodigiously increased by the load of ice they had to sustain, that a branch of hemlock spruce which weighed twenty pounds when covered with ice, weighed only one pound when the ice was melted. The scene of desolation which presented itself after this "ice-storm," Mr. Taylor describes as being most extraordinary. Within the limits of fifteen acres of forest fifty of the largest trees were overthrown, besides an immense number that had their branches broken. Roads were completely stopped up by the falling timber. Waggons, slades, and sleighs were necessarily abandoned, and the horses, in some instances, with difficulty saved. In the course of a few days, however, a thaw, accompanied by heavy rain, completely cleared the drooping forest of the remains of its unwonted covering.

As many birds build their nests in February, of course young birds are abundant in the month of March; and as, when the weather happens not to be particularly warm, there are not so many caterpillars as in summer, the parent birds are frequently obliged to go to a considerable distance to obtain food for their young; and, as the young birds are thus left comparatively unprotected, they frequently fall victims to some of the many enemies by which they are surrounded. The parent birds, also, from the intentness with which they pursue their occupation, frequently run into dangers which, under other circumstances, they would have avoided, and are pounced upon by the sparrow-hawks and other birds of prey, which seem instinctively to know that it is a favourable moment for their attacks. In some cases the unfortunate birds appear to see their danger, but to be unable to avoid it; and in the "Journal of a Naturalist" a fact is related which seems to prove that the powers of some of the smaller birds are completely subdued by the presence of an enemy:—"A beautiful male bullfinch," says Mr. Knapp, "that sat pecking the buds of a blackthorn by my side, when I was overlooking the work of a labourer, suddenly uttered the instinctive moan of danger, but made no attempt to escape into the bush, seemingly deprived of the power of exertion. On looking round, a sparrow-hawk was observed on motionless wing, gliding rapidly along the hedge, and, passing me, rushed on its prey with undeviating certainty."

WINTER GREEN.

The Winter Green (*Pyròla*) is an elegant little plant, which grows wild in the north of England and in Scotland, but which it is very difficult to cultivate. One species is occasionally found in gardens, but that which has cut leaves is quite a wild denizen of the woods, which resists every attempt at cultivation. The flower is very pretty, as it is white with a yellow centre, and the petals have a solid wax-like appearance, somewhat like those of the camellia.

In March, the meadows in some situations are gay with daffodils, the wild flowers of which are, perhaps, even more splendid than the cultivated varieties, though they are much less durable. Shakespeare speaks of the daffodil in the beautiful lines on the flowers of spring, in "The Winter's Tale:"—

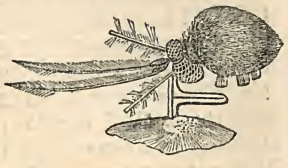
> Daffodils,
> That come before the swallow dares, and take
> The winds of March with beauty; Violets dim,
> But sweeter than the lids of Juno's eyes,
> Or Cytherea's breath; pale Primroses,
> That die unmarried, ere they can behold
> Bright Phœbus in his strength; bold Oxlips, and
> The Crown Imperial.

Herrick has also addressed the following lines to the daffodil:—

> Fair daffodils, we weep to see
> You haste away so soon;
> As yet the early rising sun
> Has not attained his noon.
> Stay, stay,
> Until the hastening day
> Has run
> But to the evening song;
> And, having pray'd together, we
> Will go with you along!
>
> We have short time to stay, as you;
> We have as short a spring,
> As quick a growth to meet decay,
> As you, or anything:
> We die
> As your hours do; and dry
> Away,
> Like to the summer's rain,
> Or as the pearls of morning dew,
> Ne'er to be found again.

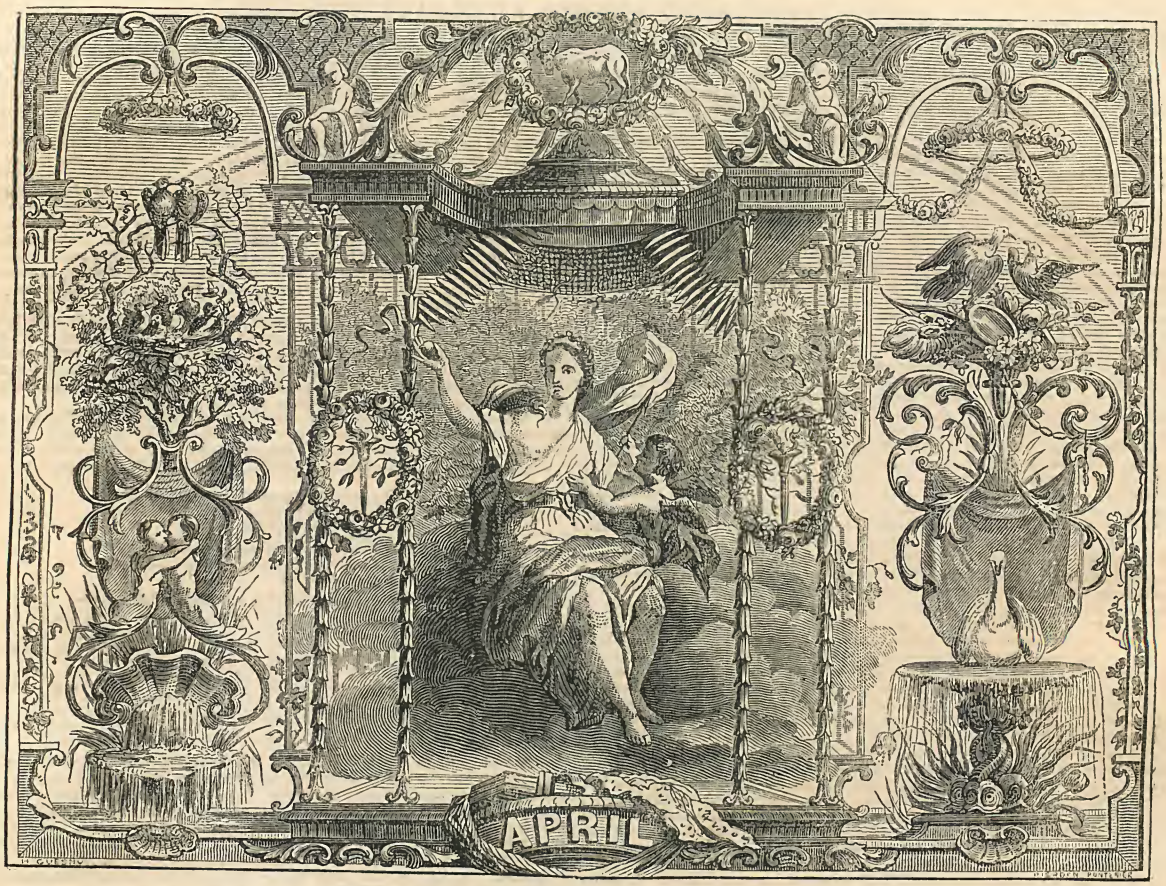
In the gardens are now abundance of crocuses of various kinds; mezereons, pink and white; the spurge laurel, one kind of which (*Dáphne póntica*) has fragrant flowers; and abundance of violets. The trees are beginning to come into leaf, particularly the willow, the laburnum, and the lilac; and the horse-chestnut begins to open its buds, the large scales enclosing which crack and fall off in such quantities that they may be gathered up with the hand from under the trees. The buds of the elm also throw off their scales when the leaves first open in spring. Among the other trees which come early into leaf may be mentioned the aspen and the white poplar.

The alternations of bright sunshine and rain which are common in March are extremely favourable to the appearance of gnats and other similar insects. The first of these that appear are what are called the winter midges (*Trichocèra hyemàlis*). "These delicate little creatures may often be seen throughout the winter and early spring months assembled in troops, alternately rising and falling with rapid revolutions, in some sunny nook, even though the ground may at the time be covered with snow." As the spring advances, these midges are succeeded by others of a different species; and as the weather becomes warmer the true gnats appear. The sting of the gnat (*Cùlex pípiens*) is well known; though gnats themselves are generally so rapid in their movements, and so much dreaded whenever they appear, that very few people are aware of the delicacy and elegance of their forms. Even the sting is very curiously formed. The sucker which pierces the skin is enclosed in a sheath, which folds up as the sucker enters into the flesh: the sucker of the gnat has six lancets, and it thus inflicts a severe though minute wound, the pain of which is increased by an acrid liquor injected into it. When a gnat is examined under a microscope, it will be found beautifully and delicately formed; and those who will take the trouble to watch the operations of the female, when she is about to make her nest, will be very much struck with the ingenuity and admirable instinct which this little creature displays. The eggs of the gnat are pointed at the upper end and much broader below, and they are so heavy that if laid singly in the water they would sink to the bottom. The difficulty, therefore, is to contrive some mode of keeping them floating; and this the gnat performs by making her eggs into a kind of boat-shaped raft. To perform this the mother gnat fixes herself by her fore-legs to a floating leaf, branch, or anything else that may be in the water, with her body resting on the surface, except the last ring of her tail, which is a little raised; "she then crosses her two hind legs in the form of the letter X, the inner opening of which is intended to form the scaffolding of her structure. She accordingly brings the inner angle of her crossed legs close to the raised part of her body and places in it an egg, covered, as is usual among insects, with a glutinous fluid. On each side of this egg she places another, all which adhere firmly together, by means of their glue, and form a triangular figure, which is the stern of the raft. She proceeds in the same manner to add egg after egg in a vertical (not a horizontal) position, carefully regulating the shape by her crossed legs; and, as her raft increases in magnitude, she pushes the whole gradually to a greater distance; and when she has about half finished she uncrosses her legs and places them parallel, the angle being no longer necessary for shaping the boat. Each raft consists of from two hundred and fifty to three hundred and fifty eggs, which, when all laid, float on the water secure from sinking, and are finally abandoned by the mother. They are hatched in a few days, the grubs issuing from the lower end; but the boat, now composed of the empty shells, continues to float till it is destroyed by the weather.



GNAT INSERTING ITS STING.

FEMALE GNAT DEPOSITING HER EGGS.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'Clock.	SUN. Souths. Height above horizon	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning.	MOON. Souths. Height above horizon	MOON. Sets Morning.	Moon's Age.	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 3h. 4h.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 8h. 9h. 10h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	M	Easter Monday	5 38	3 59	43	6 31	11 43	3 27	22¾	8 8	19			4 50	5 5	91
2	Tu	Easter Tuesday	5 36	3 41	43½	6 33	Morning.	4 16	20½	8 45	20			5 25	5 40	92
3	W	Rich. Bp. Chich.	5 34	3 23	43¾	6 35	0 41	5 4	19¼	9 25	21			6 0	6 20	93
4	Th	*St. Ambrose*	5 32	3 5	44¼	6 37	1 33	5 52	18¾	10 11	☾			6 40	7 5	94
5	F	Sirius souths 5h 44m P.M.	5 29	2 47	44½	6 38	2 19	6 40	19½	11 4	23			7 30	8 0	95
6	S	Old Lady Day	5 27	2 30	45	6 40	2 58	7 27	20¾	Afternoon	24			8 45	9 25	96
7	S	Low Sunday	5 24	2 12	45¼	6 41	3 31	8 14	23	1 2	25			10 10	10 45	97
8	M	Fire Insur. due	5 22	1 55	45¾	6 43	4 2	9 0	26	2 7	26			11 25	At Midnight.	98
9	Tu	Castor souths 6h 15m P.M.	5 20	1 39	46	6 44	4 27	9 46	29¾	3 14	27			No Tide.	0 25	99
10	W	Ox. & C. T. beg.	5 18	1 22	46½	6 45	4 52	10 32	33¾	4 23	28			0 50	1 10	100
11	Th	Length of day 13h 31m	5 15	1 6	46¾	6 46	5 15	11 18	38¼	5 33	29			1 30	1 45	101
12	F	Day breaks 3h 8m	5 13	0 50	47¼	6 48	5 40	Afternoon	43	6 45	○			2 0	2 20	102
13	S	Twilight ends 8h 57m	5 11	0 34	47½	6 50	6 6	0 56	47½	8 0	1			2 40	2 55	103
14	S	2nd S. aft. East.	5 9	0 18	47¾	6 52	6 34	1 48	51½	9 15	2			3 10	3 30	104
15	M	Easter Term beg.	5 7	0 3	48¼	6 53	7 7	2 42	54¾	10 29	3			3 50	4 5	105
16	Tu	Procyon souths 5h 53m P.M.	5 5	Before 12 o'clock.	48½	6 55	7 47	3 39	57	11 38	4			4 25	4 45	106
17	W	Length of night 10h 5m	5 2	0 26	49	6 57	8 35	4 37	58¼	Morning.	5			5 5	5 30	107
18	Th	Pollux souths 5h 50m P.M.	5 0	0 40	49¼	6 59	9 33	5 36	58	0 40	6			5 50	6 15	108
19	F	*Alphage*	4 58	0 54	49¾	7 0	10 39	6 34	56¼	1 34	○			6 45	7 15	109
20	S	Alpha Hydræ souths 7h 26m P.M.	4 56	1 7	50	7 2	11 51	7 30	53½	2 19	8			7 50	8 30	110
21	S	3rd S. aft. East.	4 55	1 20	50¼	7 4	Afternoon	8 23	49¾	2 57	9			9 15	9 55	111
22	M	Regulus souths 7h 58m P.M.	4 53	1 32	50¾	7 6	2 21	9 15	45½	3 27	10			10 40	11 20	112
23	Tu	*St. George*	4 51	1 44	51	7 8	3 37	10 5	40¾	3 54	11			11 50	No Tide.	113
24	W	Beta Leonis souths 9h 31m P.M.	4 49	1 56	51¼	7 10	4 51	10 54	36¼	4 21	12			0 20	0 45	114
25	Th	*St. Mark Evan.*	4 47	2 7	51¾	7 11	6 3	11 42	31½	4 46	13			1 10	1 35	115
26	F	[Princess Alice M. born, 1843.	4 45	2 18	52	7 13	7 14	Morning.	—	5 10	●			1 55	2 10	116
27	S	Spica Virginis souths 10h 56m P.M.	4 43	2 28	52¼	7 14	8 23	0 30	27½	5 36	15			2 35	2 50	117
28	S	4th S. aft. East.	4 41	2 37	52½	7 16	9 29	1 18	24	6 6	16			3 10	3 30	118
29	M	Arcturus souths 11h 38m P.M.	4 39	2 47	53	7 17	10 31	2 7	21¼	6 40	17			3 45	4 0	119
30	Tu	Regulus souths 7h 27m P.M.	4 37	2 55	53¼	7 19	11 25	2 56	19½	7 18	18			4 20	4 40	120

APRIL.

The Sun is situated north of the Equator, and on the 20th, at 11h. 16m. A.M., passes from the sign Aries to that of Taurus (the Bull), having been in the former sign 30 days, 12 hours, and 13 minutes. He rises on the 8th, at E. by N.; and on the 28th, at E.N.E. He sets on the same days near W. by N. and W.N.W. On the 1st he is 95,003,000 miles distant from the Earth.

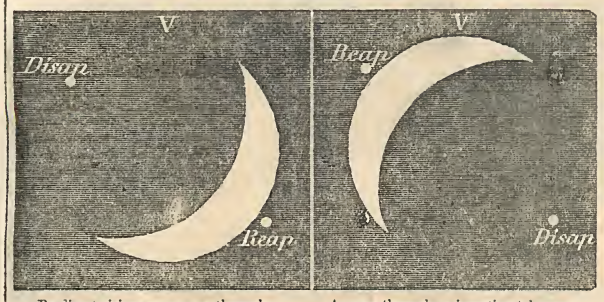
The Moon is in Ophiuchus on the 1st and 2nd; in Sagittarius from the 3d to the 5th; in Capricornus on the 6th and 7th; in Aquarius on the 8th and 9th; in Cetus, and moving near the boundaries of Cetus, Pisces, and Aries, from the 9th to part of the 14th; in Taurus on the latter part of the 14th to the 16th; in part of Orion, and crossing the Milky Way, during the early hours of the 17th; in Gemini on the 18th and 19th; in Cancer on the 19th and 20th; in Leo on the 21st and 22nd; in Virgo from the 23rd to the 26th; in Libra on the 27th and 28th; in Ophiuchus on the 29th; and in Sagittarius, on the evening of the last day.

She is above the horizon when the Sun is below, during the morning hours, for some days at the beginning and at the end of the month; and during the evening hours, from the 15th to the 27th.

She is at her extreme south declination on the 4th; on the Equator on the 11th; at her greatest north declination on the 19th; a second time on the Equator, on the 24th; and is south of the Equator till the end of the month.

She is near Mercury and Saturn on the 11th; Uranus on the 12th; Venus on the 13th; Mars on the 18th; and Jupiter on the 22nd. Her times of rising, southing, and setting, together with her height expressed in degrees at the times of southing, are given on the calendar pages for every day in the year. Her times of being full and new are given in every month at the foot of the second page of every month.

OCCULTATION OF ALDEBARAN BY THE MOON, ON APRIL 15, 1850.



By direct vision, or as seen through a telescope which does not invert. As seen through an inverting telescope.

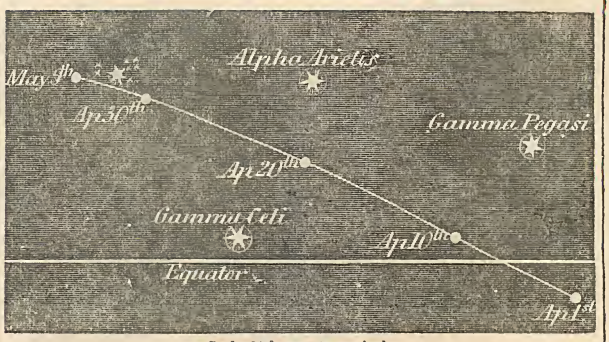
The star will disappear at the dark limb of the Moon, and will reappear at the bright limb; the former will take place at 8h. 3m. P.M., and the latter at 8h. 59m. P.M. The disappearance may be seen without the assistance of a telescope.

Mercury is in the constellation Pisces till the 4th; in Cetus from the 5th to the 11th; in Pisces again from the 12th to the 16th; in Aries from the 17th to the 29th; and enters Taurus on April 30. He rises a few minutes before the Sun till the 16th, after which day the Sun rises before this planet. He sets before the Sun till the 18th; on the 19th, he sets 9 minutes after the Sun; on the 25th, he sets at 8h. 4m.; and on the last day, at 8h. 45m.: which times are 53 minutes, and 1h. 26m. after sunset respectively. Therefore, he is favourably situated for observation during a few evenings at the end of this month. He sets on the 22nd near W.N.W., and on the last day near N.W. by N. He moves eastward among the stars throughout the month; and is near Saturn on the 10th, the Moon on the 11th, Uranus on the 17th, and is in superior conjunction with the Sun on the 18th. His path among the stars, and his relative position to them is shown in the annexed diagram, which is a continuation of that inserted in February.

Venus is in the constellation Pisces till the 6th; Aries from the 7th to the 26th; and in Taurus from the 27th.

She is an evening star, and sets on the 1st, at 7h. 9m. P.M.; on the 15th, at 7h. 54m. P.M.; and on the last day at 8h. 44m. P.M.; on the 2nd at the W. by N., and on the 17th at the W.N.W. points of the horizon. She is moving eastward among the stars throughout the month; is near Uranus on the 7th, and the Moon on the 13th. (See the diagram in last month, exhibiting her path in the heavens, and relative position to the stars near her path.) Her telescopic appearance has almost remained unchanged since January.

PATH OF MERCURY FROM APRIL 1 TO MAY 5, 1850.



Scale, 24 degrees to one inch.

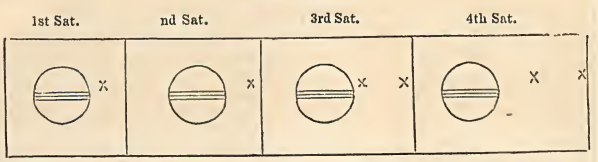
Mars is in the constellation Gemini throughout the month.

He is an evening star, and sets on the 1st, at 2h. 29m. A.M.; on the 15th, at 1h. 59m. A.M.; and on the last day, at 1h. 23m. A.M., between the N.W. and the N.W. by N. points of the horizon. He moves eastward among the stars, and is near the Moon on the 18th: his altitude above the horizon, when he souths on the 1st, is 64°; and on the last day, is 62°. (See the diagram in last month, showing his path among the stars.)

Jupiter is in the constellation Leo throughout the month. He sets on the 1st at 5h. 13m. A.M.; and on the last day at 3h. 15m. A.M., at the W. by N. point of the horizon. He souths at an altitude of 45°¾ on the 1st, and of 46°¼ on the last day. He moves slowly westward among the stars, and is near the Moon on the 22nd. (See the diagram in next month for his position with respect to neighbouring stars.)

Jupiter's Satellites.—A few emersions of the first and second, and an immersion and emersion of the fourth, are visible. The relative position of the satellite to Jupiter at the instant of the eclipse is shown in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Cetus throughout the month. At the beginning of the month he rises, souths, and sets at the same time nearly as the Sun, and he is unfavourably situated for observation. He souths at an altitude of 41° nearly; he is near Mercury on the 10th, and the Moon on the 11th.

Uranus is in the constellation Pisces throughout the month. He is not favourably situated for observation.

Neptune rises on the 1st, at 4h. 38m. A.M.; on the 15th, at 3h. 42m. A.M.; and on the last day, at 2h. 46m. A.M., midway between the E. by S. and the E.S.E. points of the horizon.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

From the monthly account of the motions of the celestial bodies, it will be remarked that the Sun, the Moon, and the planets are incessantly shifting their places. The stars, on the contrary, as has already been remarked in previous years, maintain the same relative positions, and thus act admirably as points of reference to indicate the positions and changes of position of the other heavenly bodies.

The apparent path of the Sun is from west to east; and, in his motion, he seems

(*Continued on page* 29.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Morning.	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Afternoon	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	11 9	0 33	5 55	10 28	0 6	9 55
6	11 22	0 36	5 45	10 7	Morning	9 37
11	11 37	0 40	5 36	9 46	11 31	9 16
16	11 55	0 44	5 28	9 24	11 14	8 57
21	Aftern.	0 48	5 19	9 4	10 56	8 38
26	0 35	0 53	5 11	8 43	10 39	8 19
30	0 51	0 57	5 4	8 27	10 25	8 2

JUPITER'S SATELLITES.

Eclipses of 1st Sat. Emersion.	Eclipses of 2nd Sat. Im. I. Emer. E.
D. H. M.	D. H. M.
1 9 30 P.M.	1 9 22 P.M. E.
8 11 24 P.M.	8 11 59 P.M. E.
16 1 18 A.M.	16 2 36 A.M. E.
24 9 41 P.M.	
	4th Sat.
	11 10 13 P.M. I.
	12 1 30 A.M. E.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
Aldebaran	1	15 8 3 P.M.	Dark	10° N. &
		15 8 59 P.M.	Bright	83° N.
119 Tauri	5	16 6 58 P.M.	Bright	56° N. &
		16 7 27 P.M.	Bright	3° S.
120 Tauri	6	16 7 26 P.M.	Dark	1° N. &
		16 8 13 P.M.	Bright	62° N.
Sigma Leonis	4	22 6 20 P.M.	Dark	69° N. &
		22 7 28 P.M.	Bright	6° S.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

	D.	H.	M.	
Last Quarter	4	3	44	P.M.
New Moon	12	0	47	P.M.
First Quarter	19	10	7	A.M.
Full Moon	26	11	20	A.M.
Apogee	5	4		A.M.
Perigee	18	At Noon.		

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination South.	Venus. Right Ascension	Venus. Declination North.	Mars. Right Ascension	Mars. Declination North.	Jupiter. Right Ascension	Jupiter. Declination North.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
1	23h. 47m	3° 53′	1h. 11m	6° 24′	6h. 33m	25° 27′	11h. 8m	7° 11′	0h. 44m	2° 18′	1h. 35m	9° 20′	22h. 32m	10° 2′
6	0 20	0 1	1 34	8 51	6 44	25 13	11 6	7 22	0 46	2 32	1 36	9 26	22 32	9 59
11	0 55	North.	1 57	11 12	6 54	24 57	11 5	7 32	0 48	2 47	1 37	9 33	22 33	9 56
16	1 32	8 43	2 21	13 27	7 5	24 38	11 3	7 40	0 51	3 1	1 38	9 39	22 34	9 53
21	2 11	13 15	2 45	15 34	7 16	24 15	11 2	7 47	0 53	3 15	1 39	9 45	22 34	9 50
26	2 51	17 25	3 9	17 31	7 27	23 50	11 1	7 51	0 55	3 28	1 40	9 51	22 34	9 47

APRIL.—ANGLING FOR SALMON.

NOTES ON NATURAL HISTORY.—APRIL.

All day the low-hung clouds have dropt
Their garner'd fulness down;
All day that soft grey mist hath wrapt
Hill, valley, grove, and town.
The very earth, the steamy air,
Is all with fragrance rife;
And grace and beauty everywhere
Are flushing into life.

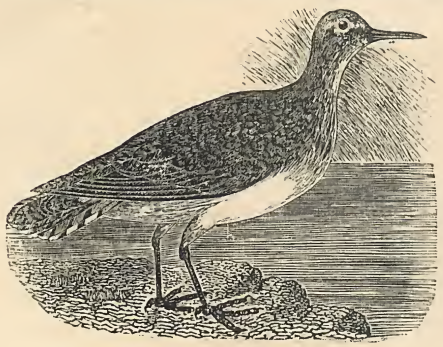
Down, down they come—those fruitful stores!
Those earth-rejoicing drops!
A momentary deluge pours,
Then thins, decreases, stops;
And ere the dimples on the stream
Have circled out of sight,
Lo! from the west, a parting gleam
Breaks forth of amber light.

These lines admirably describe the appearance of an April day with its alternations of rain and sunshine, which seem as though nature were struggling to shake off the dominion of winter, and to welcome summer.

Many of the migratory birds return to England in this month, and especially the cuckoo, which,

Hid in some bush, now sings her idle song,
Monotonous, yet sweet; now here, now there;
Herself but rarely seen.

Other birds also make their appearance in April, and one of these, the common sandpiper or summer snipe, only stays from April till September. "The habits of the common sandpiper," Mr. Yarrell observes, "are interesting; its actions



COMMON SANDPIPER.

are lively, and it is mostly seen while running nimbly along the gravelly margins of rivers, brooks, lakes, or ponds. When on the ground it is in constant motion, flirting the tail up and down, and almost as frequently stretching out, and again withdrawing the head and neck. When disturbed and flushed, this bird utters a piping note on taking wing, which has been compared by Colonel Sykes to the sounds, *wheet, wheet, wheet;* and Mr. Selby says, that, from the resemblance to its well-known note, one of the provincial names of this species is Willy Wicket." This bird feeds on worms and insects. It is seldom seen on the sea-shore, though it is fond of fresh water, and generally makes its nest in a hole in the bank of a stream. The female, when alarmed, tries all kinds of expedients to entice strangers from her nest, and, like the female lapwing, she affects lameness, or else runs with one wing hanging down as though it were broken, in order to divert the attention of a stranger from her brood. A correspondent of the *Magazine of Natural History*, after stating that the common sandpiper breeds in Lancashire, adds, "and I this year started an old one from her nest, at the root of a fir tree. She screamed out, and rolled about in such a manner, and seemed so completely disabled, that, although perfectly aware that her intention was to allure me from her nest, I could not resist my inclination to pursue her, and, in consequence, I had great difficulty in finding the nest again. It was built of a few dried leaves of the Weymouth pine, and contained three young ones, just hatched, and an egg, through the shell of which the bill of the young chick was just making its way; yet, young as they were, on my taking out the egg to examine it, the little things, which could not have been out of their shells more than an hour or two, set off out of the nest with as much celerity as if they had been running about a fortnight. As I thought the old one would abandon the egg if the young ones left the nest, I caught them, and covering them up with my hand for some time, they settled down again. Next day all four had disappeared." The full-grown sandpipers can swim and dive very well; and a writer on the subject says, that when a sandpiper, flying across a river, was attacked by a hawk, it instantly dived, and remained under water till the hawk had disappeared. It then emerged and rejoined its companions. It is said that when diving, this bird uses its wings under water the same as in flying; and on one occasion, when a sandpiper was shot at and wounded so that it fell near a brook, no sooner was it down than it ran as quickly as possible into the water, into which it plunged as a place of refuge. This bird is supposed to pass its winters generally in the south of Europe, but it has been found at Tangiers, in Asia Minor, and even in India.

In April the greater number of the wild flowers are in perfection, and, as Charlotte Smith sings,

The furze is yellow on the heath,
The banks with speedwell flowers are gay,
The oaks are budding, and beneath
The hawthorn soon will bear the wreath,
The silver wreath of May.

The sloe and the bullace are now in flower in the hedges, and the birds are busy pecking off the opening buds of the hawthorn and other trees. In the gardens the birds generally attack the gooseberry bushes in this month, and they have no mercy on the crocuses and other spring flowers, the petals of which frequently look jagged and torn from the laceration of their little beaks. Towards the close of the month the wild heart's-ease appears in the meadows, and it may, perhaps, be interesting to mention that this plant first excited the attention of Bartram, a celebrated American botanist, to the study of plants. He was walking in a field in early spring, and chancing to see a wild heart's-ease, he gathered it, and went on, thinking on various subjects, and carelessly plucking off the petals of the flower, without being well aware of what he was doing. He then chanced to cast his eye upon the remnant left in his hand, and was much struck with its singular appearance, as the stamens and pistil of the heart's-ease, when the petals have been stripped off, bear a considerable resemblance to a young bird when it has just issued from the shell. Bartram was so struck with this, that he gathered other flowers, and observing how curiously each was formed, he went home deeply impressed with the wonders of nature, and from that time he preferred the study of natural history to any other pursuit, and afterwards became the first botanist of America.

In gardens in warm and yet open situations, such as the garden of the London Horticultural Society at Chiswick, a number of beautiful plants are in flower. The spring gentian grows close to the ground, with its large bell-shaped flowers of the deepest and richest dark blue. The *Mahònia*, or ash berberry, forms an elegant little shrub, with bright dark green shining leaves, and a profusion of rich yellow clustered flowers. The Judas-tree (*Cércis Siliquástrum*) has a profusion of bright pink pea-like flowers, which are produced on the naked trunk and branches, appearing before the leaves. The *Magnòlia conspícua*, or Yulan-tree, produces its large lily-like flowers, also before the leaves, and they appear in such profusion that the tree is sometimes completely covered with them, as if with a sheet. There was a large tree of this kind in a nursery at Kensington, near the entrance to Kensington Gardens, which, in April, 1827, was covered with upwards of eleven hundred flowers, and had a very singular effect when seen from the road on a moonlight night, as it looked like a white pyramid among the surrounding trees, so completely was it covered with blossoms. The *Wistària*, or *Glycine sinénsis*, is generally in all its beauty, with its racemes of shaded lilac flowers, in shape like those of the laburnum, which it generally precedes by a few days, the laburnum being followed by the *Robínia Pseüd-Acàcia*, the flowers of which are of the same shape, but of a different colour, being white slightly tinged with pink. Of all these trees, the *Wistària* is perhaps the most beautiful, as its flowers are delicately shaded; they are also slightly fragrant, and they appear very early in spring, a second crop being often seen in August or September. Some varieties of the laburnum are also fragrant, and others are remarkably beautiful, from the great length of their drooping racemes of flowers. The *Robínia*, or False Acacia, is the least beautiful of the three, though it also varies occasionally, and is sometimes much more ornamental than at others. The wild cherry comes into flower towards the middle of the month, and it is extremely ornamental in woods and pleasure-grounds, from the great profusion of its flowers.

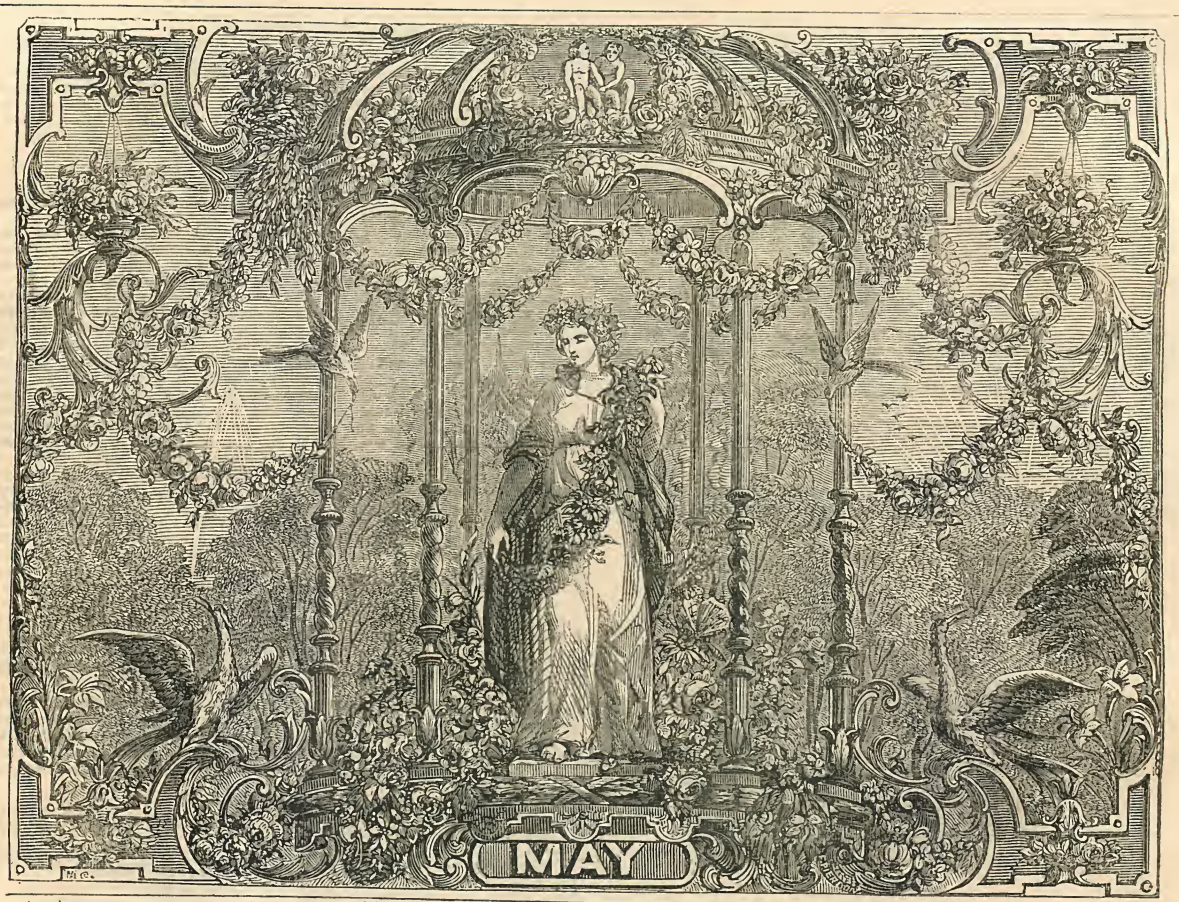
Among the numerous insects that are found in gardens in April, may be mentioned the cuckoo-spit, or froth-fly, or frog-hopper; for by all these names is this curious insect popularly known. The names of cuckoo-spit and froth-fly both allude to the peculiar habit of the insect, when in the larva state, of enveloping itself in a kind of frothy secretion, somewhat resembling saliva, and which, indeed, was formerly supposed to be the saliva of the cuckoo, it being found on the young shoots of plants just about the time that the cuckoo is heard in the woods. The frothy secretion is supposed to be intended to preserve the tender body of the insect from the overpowering effects of the sun, as it has been observed to be produced in exact proportion to the heat of the weather. It is not known exactly how the froth is produced, but it is evidently only water, to which the insect gives its frothy appearance; as, when by any chance it becomes condensed, it drops like rain from the trees on which the insect is found. It is only in its larva, or infant state, that it produces the froth. The larva and the pupa resemble the perfect insect, except that the larva has no wings, and the pupa has very small ones. The perfect insect, however, has both wings and wing-cases, and it has the power of flying to a considerable distance. Sometimes, indeed, these insects are seen in vast multitudes on the wing. Professor Welsh states (as quoted by Messrs. Kirby and Spence), "that one night, about eleven o'clock, sitting in his study, his attention was attracted by what seemed the pelting of hail against his window, which surprised him by its long continuance; he opened the window, and found the noise was occasioned by a flight of the froth frog-hopper, which entered the room in such numbers as to cover the table. From this circumstance, and the continuance of the pelting, which lasted at least half an hour, an idea may be formed of the vast host of these insects passing over. It passed from east to west; and, as his window faced the south, the insects only glanced against it obliquely." One of the peculiarities of this insect is its power of leaping, which is so great, that, being assisted by its wings, it will sometimes leap a distance of five or six feet, which, as Messrs. Kirby and Spence observe, is more than two hundred and fifty times its own length, or as much as if a man were to take a leap a quarter of a mile high. This extraordinary activity appears to be principally occasioned by the great length of the thighs of the insect, which are also furnished on their outer margin with a fringe of stiff hairs or strong pines, which are of great use to the insect in leaping. The insect, when about to leap forward, places its hind thighs nearly erect, keeping them close to the body; it next with great violence kicks them out backwards, so as to stretch the leg in a right line, and to press the spines upon the ground; the spines then lay hold of the surface, and by their pressure enable the body to spring forwards. The great assistance afforded by the spines is clearly shown by the fact that, when the insect is on glass, of which the spines cannot catch hold of the surface, it cannot leap more than six inches.

CUCKOO-SPIT.

a, The frothy substance. b, The pupa.

PERFECT INSECT OF THE CUCKOO-SPIT.

About this season, if the buds of the rose-trees are examined just as the leaves are beginning to unfold, a little brown speck will be found attached to them here and there, looking like a seed. This is a case which conceals the larva or caterpillar of a very small moth (*Tinea rhodophagélla*). The larva is very destructive, and when it has devoured one leaf, it removes with its case to another. It is very small, being only a few lines long, and yellow, with a black head, and a ring of black spots round the body near to the head. When it goes into the pupa state, it only enlarges a little the case in which it lived while it was a caterpillar. The moth is very small; its body is of a silvery grey, and its upper wings are covered with small black dots. This caterpillar is most troublesome in the flower-pit, where it appears on rose-trees in pots, which are intended for early flowering; but though it is not a native of this country, it is now frequently found on rose-trees in the open air. Insects are very abundant at this season, probably for two reasons: first, that they can feed most easily upon the leaves when they are first developed; and, secondly, because they are wanted to feed the number of young birds which are hatched in early spring.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'Clock.	SUN. Height above horizon	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Height above horizon	MOON. Sets. Morning.	Moon's Age.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.		H. M.	H. M.	
1	W	*Philip. James*	4 35	3 3	53½	7 21		3 44	18¼	8 2	19	4 55	5 10	121
2	Th	Day inc. 7h. 5m.	4 33	3 11	53¾	7 23	0 15	4 33	18½	8 53	20	5 30	5 50	122
3	F	Invent. of Cross.	4 31	3 17	54¼	7 24	0 56	5 20	20	9 47	21	6 10	6 35	123
4	S	[5th S. aft. Easter.	4 29	3 24	54½	7 26	1 33	6 7	21¾	10 46	☾	7 0	~ 25	124
5	S	Rogation Sun.	4 28	3 30	54¾	7 27	2 3	6 53	24½	11 49	23	7 55	8 40	125
6	M	*St. John Evan.*	4 26	3 35	55	7 29	2 30	7 38	28	Afternoon	24	9 15	9 55	126
7	Tu	Beta Leonis souths 8h 40m P.M.	4 24	3 39	55¼	7 30	2 55	8 24	31¾	2 3	25	10 30	11 5	127
8	W	East. Term ends	4 22	3 43	55½	7 32	3 18	9 9	36¼	3 12	26	11 35	No Tide.	128
9	Th	Ascension Day.	4 21	3 47	55¾	7 33	3 41	9 56	40¾	4 23	27	0 5	0 25	129
10	F	[*Holy Thursday*	4 19	3 50	56	7 35	4 7	10 45	45½	5 38	28	0 45	1 5	130
11	S	Spica Virginis souths 10h 0m P.M.	4 17	3 52	56¼	7 36	4 31	11 37	49¾	6 54	○	1 30	1 45	131
12	S	Sun. aft. Asc. Day	4 15	3 54	56½	7 38	5 5	Afternoon	53½	8 11	1	2 5	2 25	132
13	M	Old May Day.	4 14	3 55	56¾	7 39	5 42	1 29	56½	9 25	2	2 45	3 5	133
14	Tu	Length of day 15h 29m	4 12	3 55	57	7 41	6 28	2 28	58¼	10 32	3	3 30	3 45	134
15	W	Length of night 8h 29m	4 11	3 55	57¼	7 42	7 23	3 29	58½	11 32	4	4 10	4 30	135
16	Th	Day breaks 1h 0m	4 10	3 55	57½	7 44	8 28	4 28	57¼	Morning.	5	4 50	5 15	136
17	F	Twilight ends 11h 0m P.M.	4 8	3 53	57¾	7 45	9 39	5 26	54½	0 20	6	5 45	6 10	137
18	S	Ox. Term ends	4 6	3 52	58	7 47	10 54	6 21	51	1 2	7	6 40	7 10	138
19	S	Whit Sunday	4 5	3 50	58¼	7 48	Afternoon	7 12	47	1 35	8	7 45	8 20	139
20	M	Whit Monday	4 4	3 47	58½	7 49	1 24	8 2	42½	2 1	9	9 5	9 40	140
21	Tu	Whit Tuesday	4 3	3 44	58¾	7 50	2 38	8 50	37¾	2 27	10	10 15	10 50	141
22	W	Ember Week	4 2	3 40	58¾	7 52	3 49	9 37	33¼	2 49	11	11 25	11 55	142
23	Th	Camb. Term div.	4 0	3 36	59	7 53	5 1	10 25	29	3 14	12	No Tide.	0 20	143
24	F	Qu Vic. born 1819	3 59	3 31	59¼	7 55	6 10	11 12	25¼	3 40	13	0 45	1 5	144
25	S	Pr Helena b 1846	3 58	3 26	59½	7 56	7 17	At Midnight.	22¼	4 6	14	1 30	1 50	145
26	S	Trin. Sunday	3 57	3 20	59¾	7 58	8 21	Morning.	—	4 38	○	2 10	2 30	146
27	M	King George I. b.	3 56	3 13	59¾	7 59	9 18	0 49	20	5 14	16	2 50	3 5	147
28	Tu	[*Ven. Bede*	3 55	3 7	60	8 0	10 10	1 38	18¾	5 55	17	3 25	3 40	148
29	W	K. Chas. II. rest.	3 54	2 59	60¼	8 1	10 57	2 26	18½	6 42	18	4 0	4 15	149
30	Th	*Corpus Christi*	3 53	2 52	60¼	8 2	11 34	3 15	19¼	7 37	19	4 35	4 50	150
31	F	Arcturus souths at 9h 32m P.M.	3 52	2 43	60½	8 3	Morning.	4 2	20¾	8 35	20	5 10	5 30	151

DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 1h. 2h. 3h. After Sunset. O'Clock. 9h. 10h. 11h.

MAY.

THE SUN is situated north of the Equator; and on the 21st, at 11h. 25m. A.M., passes from the sign Taurus to Gemini (the Twins), having been in the former sign 31 days and 9 minutes. He rises on the 1st at 1°¾ N. of E.N.E., and on the 25th at N.E. by N. He sets on the same days at 1°¾ N. of W.N.W., and near the N.W. by N. points of the horizon. On the first day he is 95,785,000 miles distant from the Earth.

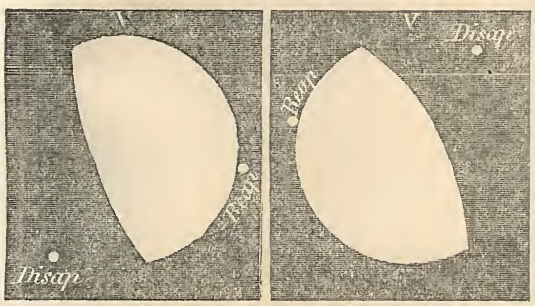
The MOON is in Sagittarius till the morning of the 3d, then passes into Capricornus, and into Aquarius on the morning of the 5th; into Pisces near midnight on the 6th; into Cetus on the morning of the 8th; and till the evening of the 11th she is moving on the boundaries of Cetus, Pisces, and Aries. On the 11th, at about 10h. P.M., she passes into Taurus, and crosses the Milky Way during the 14th: she enters Gemini on the 15th; Cancer on the 16th; Leo on the 17th; Virgo on the 20th; Libra on the 23d; Scorpio on the 25th; Ophiuchus, near midnight, on the 25th; Sagittarius on the 28th; and Capricornus on the 29th.

She is above the horizon when the Sun is below, during the morning hours, for a few days at the beginning of the month, and for several days at the end of the month; and during the evening hours, from the 13th to the 26th.

She is at her extreme south declination on the 1st; on the Equator on the 8th; at her extreme north declination on the 15th; on the Equator again on the 21st; and reaches, a second time this month, an extreme south declination on the 28th.

She is near Saturn on the 9th; Uranus on the 10th; Mercury and Venus on the 13th; Mars on the 16th; and Jupiter on the 19th.

OCCULTATION OF JUPITER BY THE MOON ON MAY 19, 1850, AS SEEN BY A TELESCOPE WHICH



Does not invert. Does invert.

The planet will disappear at the un-illuminated limb, and will reappear at the bright limb. To observe these phenomena, a good telescope will be necessary, as the Sun will be above the horizon at the time of their occurrence. The disappearance takes place at 6h. 32m. P.M., and the reappearance at 7h. 37m. P.M. After sunset, the planet will be seen situated north of the Moon's bright limb.

MERCURY is in the constellation Taurus throughout the month.

He is an evening star, and sets on the 1st at 8h. 53m.; on the 5th, at 9h. 20m.; on the 10th, at 9h. 41m.; on the 15th, at 9h. 57m.; on the 20th, at 9h. 55m.; on the 25th, at 9h. 41m.; and on the last day, at 9h. 6m. On the 1st, the Sun sets earlier than this planet by 1h. 32m.; on the 5th, by 1h. 53m.; on the 10th, by 2h. 10m.; on the 13th, 14th, and 15th, by 2h. 15m.; on the 20th, by 2h. 6m.; on the 26th, by 1h. 45m.; and on the last day, by 1h. 3m. These intervals of time are the largest in the year; and the planet is most favourably situated for observation between the 5th and the 25th, and particularly about the middle of this month. On any clear evening after sunset he may readily be seen. He sets on the 1st at N.W. by N.; and during the month he sets between this point and N.W. He is moving eastward till towards the end of the month, when he is stationary among the stars. He is near Venus on the 2d; the Moon on the 13th; and Venus again on the 22d. He is at his greatest eastern elongation on the 16th. His position among the stars will be seen in the diagram in July, which is a continuation of his path from that inserted in April.

VENUS is in the constellation Taurus till the 26th, and in Gemini from the 27th. She is crossing the Milky Way from the 21st to the 31st.

She is an evening star, and sets on the 1st, at 8h. 48m. P.M.; on the 15th, at 9h. 28m. P.M.; and on the 31st, at 10h. 2m. P.M.; on the 7th, near the N.W. by N. point of the horizon. She is moving eastward among the stars; is near Mercury on the 2d, the Moon on the 13th, and Mercury again on the 22d. For her path in the heavens see the diagram in next month. Her telescopic appearance is almost that of a circle, and very little larger than that shown in January.

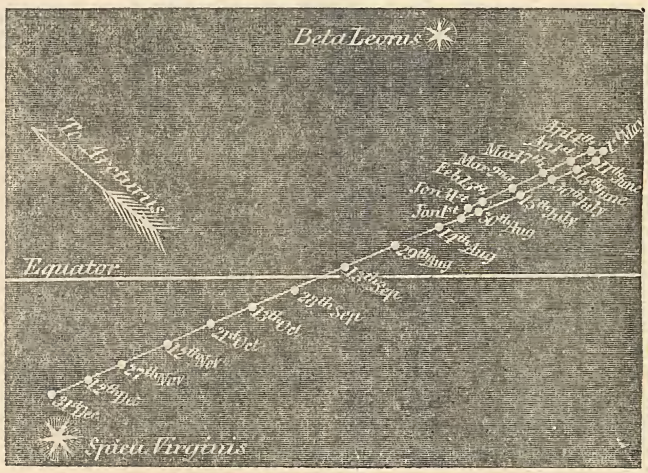
MARS is in the constellation Gemini till the 6th. On this day he passes into Cancer.

He is an evening star, and sets on the 1st at 1h. 20m. A.M.; on the 15th, at 0h. 46m. A.M.; and on the last day, at 0h. 5m. A.M.; near the N.W. by N. till the 20th day, and at the N.W. by N. on the 21st. For his path in the heavens see the diagram in next month.

JUPITER is in the constellation Leo throughout the month. He sets on the 1st, at 3h. 11m. A.M.; and on the last day, at 1h. 14m. A.M.; at the W. by N. point of the horizon. His altitude on southing is 46°¾ on the 1st, and is 46° on the last day. He is nearly stationary among the stars till towards the end of the month, when he begins to move slowly eastward, and is near the Moon on the 19th. His path among the stars, and his relative position to stars near him throughout the year, are shown in the annexed diagram.

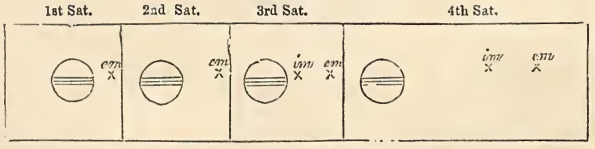
JUPITER'S SATELLITES.—A few emersions of the first and second, and an immersion and emersion of the third, are visible. The relative position of the satellite to Jupiter, at the instant of the eclipse, is shown in the annexed diagram, as viewed through an inverting telescope.

PATH OF JUPITER THROUGHOUT THE YEAR 1850.



Scale, 12 degrees to one inch.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



SATURN is in the constellation Pisces throughout the month.

He is a morning star, and rises E. by N. at 3h. 58m. A.M. on the 1st; at 3h. 6m. A.M. on the 15th; and at 2h. 6m. A.M. on the last day. He souths at an altitude of 42°¾ nearly.

URANUS is in the constellation Aries throughout the month. He rises nearly midway between the E. by N. and the E.N.E. points of the horizon on the 1st day, at 4h. 5m. A.M., and on the last day at 2h. 15m. A.M.

NEPTUNE rises on the 1st, at 2h. 42m. A.M.; on the 15th, at 1h. 46m. A.M.; and on the last day, at 0h. 44m. A.M., midway between the E. by S. and the E.S.E. point of the horizon.

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Morning.	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 55	0 58	5 2	8 23	10 21	7 59
6	1 12	1 3	4 54	8 3	10 4	7 40
11	1 23	1 9	4 46	7 43	9 46	7 21
16	1 28	1 16	4 37	7 24	9 29	7 2
21	1 26	1 23	4 29	7 4	9 11	6 41
26	1 15	1 29	4 21	6 45	8 53	6 22
31	0 56	1 36	4 13	6 27	8 35	6 2

JUPITER'S SATELLITES.

Eclipses of

1st Sat. Emersion.	2nd Sat. Im. I. Emer. E.
D. H. M.	D. H. M.
1 11 35 P.M.	3 9 9 P.M. E.
9 1 30 A.M.	10 11 47 P.M. E.
17 9 53 P.M.	3rd Sat.
24 11 48 P.M.	5 9 45 P.M. E.
	12 10 37 P.M. I.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
d 2 Cancri	6	16 10 11 P.M.	Dark	19° N. &
		16 11 2 P.M.	Bright	90° N.
Regulus	1	18 3 11 P.M.	Dark	60° N. &
		18 4 8 P.M.	Bright	10° S.
Jupiter		19 6 32 P.M.	Dark	13° N. &
		19 7 37 P.M.	Bright	90° N.
Xi 1 Sagitarii	6	28 11 49 P.M.	Bright	18° N. &
		29 1 10 A.M.	Dark	69° N.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

LAST QUARTER	4D.	10H.	46M.	A.M.
NEW MOON ..	11	11	9	P.M.
FIRST QUARTER	18	3	52	P.M.
FULL MOON ..	26	0	8	A.M.
APOGEE ..	2	At Midnight.		
PERIGEE ..	14	8		P.M.
APOGEE ..	30	5		P.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	MERCURY. Right Ascension	MERCURY. Declination North.	VENUS. Right Ascension	VENUS. Declination North.	MARS. Right Ascension	MARS. Declination North.	JUPITER. Right Ascension	JUPITER. Declination North.	SATURN. Right Ascension	SATURN. Declination North.	URANUS. Right Ascension	URANUS. Declination North.	NEPTUNE. Right Ascension	NEPTUNE. Declination South.
1	3h. 31m	20° 49′	3h. 34m	19° 16′	7h. 39m	23° 22′	11h. 0m	7° 54′	0h. 57m	3° 42′	1h. 41m	9° 57′	22h. 35m	9° 45′
6	4 7	23 14	3 59	20 49	7 50	22 50	10 59	7 56	0 59	3 55	1 43	10 3	22 35	9 43
11	4 39	24 38	4 25	22 8	8 2	22 15	11 0	7 55	1 2	4 7	1 44	10 9	22 35	9 42
16	5 3	25 7	4 51	23 11	8 13	21 37	11 0	7 53	1 4	4 19	1 45	10 15	22 36	9 41
21	5 21	24 53	5 17	23 58	8 25	20 56	11 1	7 49	1 6	4 30	1 46	10 20	22 36	9 40
26	5 30	24 3	5 44	24 28	8 36	20 12	11 1	7 43	1 7	4 41	1 47	10 26	22 37	9 39

MAY.—MACKEREL FISHING.—BRIGHTON BOATS.

NOTES ON NATURAL HISTORY.—MAY.

Among all the songsters of the grove at this season, one of the most delightful is the fauvette, or garden warbler. It is not very abundant in England, but in

GARDEN WARBLER, OR FAUVETTE.

Belgium it is a great favourite; and it is, probably, oftener in this country than people are aware of, as it is a very shy, timid bird, and it is very difficult to obtain a sight of it. In Belgium it is frequently kept in a cage; and its song is found very little inferior to that of the nightingale. Some of the notes have a peculiar softness and sweetness, while others are more loud and powerful, and others remarkably quick and lively. "It first visits us," says Sweet, "in the spring, about the latter end of April, or the beginning of May; and its arrival is soon made known by its very loud and long song. It generally begins very low, not unlike the song of the swallow, but raises it by degrees until it resembles the song of the blackbird, singing nearly all through the day, and the greater part of the time it stays with us, which is but short, as it leaves us again in August. In confinement it will sing nearly all through the year if it be treated well." In a wild state the fauvette is found in gardens and plantations, where it feeds chiefly on fruits, devouring only one kind of caterpillar, which, singularly enough, seems to be eaten by no other bird, viz. the caterpillar of the cabbage-butterfly. It is said to eat as many as from six to ten of these caterpillars in one day. It is particularly fond of strawberries, and will attack cherries even before they are ripe.

The long-tailed titmouse generally builds in this month. These are pretty little birds, and their nest is curiously constructed, as it generally hangs about five feet from the ground, and is of a very curious and singular form, about the size of a small melon, with a hole on one side through which the parent bird enters. The long-tailed titmice may often be seen on a fine day in May flying round and round after one another, as if they were having a game at play. They are generally found in parties of ten or more together, the birds belonging to a brood having the habit of continuing together after they have attained their full size.

There the green thorn her silver buds
  Expands to May's enlivening beam;
Hottonia blushes on the floods;
  And where the slowly-trickling stream
'Mid grass and spiry rushes glides,
Her lovely flowers the Buckbean hides.

Wound in the hedgerow's oaken boughs,
  The Woodbine's tassels float in air;
And, blushing the uncultured Rose,
  Hangs high her beauteous blossoms there;
Her fillets there the Nightshade weaves,
And the Bryonia winds her scollop'd leaves.

In the lone copse, or shadowy dale,
  Wild cluster'd knots of Harebells blow,
And droops the Lily of the Vale,
  The Periwinkle's leaves below;
The Orchis race with varied beauty see,
M[illegible] the gay Fly or the exploring Bee.

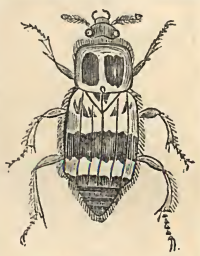
* * *

Singular as are the shapes assumed by some of the orchideous epiphytes, those of the terrestrial *Orchidàceæ* are scarcely less extraordinary. These plants are abundant in woods on chalky soils, particularly in the chalk pits and on the chalk hills of Kent. The flowers of the genus *Orchis* are all very curiously formed: the germen, or incipient seed-vessel, is long and twisted, so as to supply the place of a footstalk to the flower; and the largest petal, which is made to point downwards, in consequence of the distortion of the germen, is by far the most conspicuous part of the flower, and is termed the lip. It is this lip which represents so many curious forms; and sometimes it takes so closely the resemblance of an insect, as to deceive even an experienced eye. In one species, the monkey orchis, the lip is deeply cut, and the flower takes the figure of a little man or monkey dancing, with a hood over his head. In the lizard orchis, the lip is cut into three parts, the centre one of which is very long, and represents the tail of the lizard, while the two shorter ones form no bad representation of its feet. In the man orchis, the flower stem seems hung all over with effigies of little yellow men with green hats. The bee orchis, the spider orchis, and the fly orchis have all very curiously-formed flowers, bearing a striking resemblance to the insects from which they take their respective names. The fly orchis is very abundant in the chalky districts of south Kent, where it is found with the bee orchis, but is easily distinguished from all the other kinds of the genus by the blue spot in the middle of that part o. the lip which forms the back of the fly. All the species which resemble insects flower in May and June, and they are all very difficult to cultivate in gardens.

FLY ORCHIS.

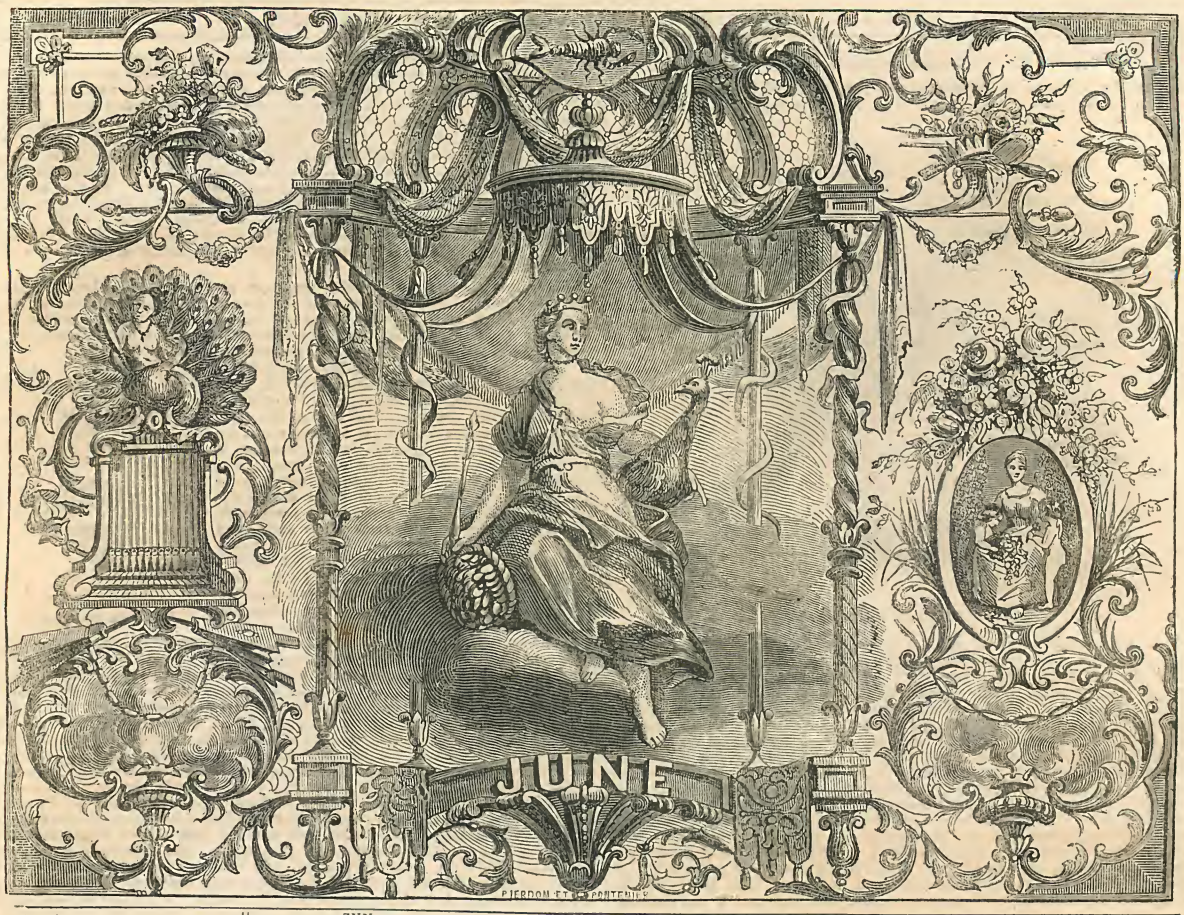
In this month the great round-leaved sallow is in flower, and is very ornamental. It is one of the few species belonging to the willow genus that prefer a dry soil, as most of the other kinds will only grow in marshy places, or where their roots can have free access to water. Above two hundred species of willow are known, and they vary in size from a shrub only two or three inches high, to timber trees fifty or sixty feet high. Some of the smaller kinds are used for basket-making; and there are little islands in the Thames, called holts, set aside purposely for growing them. All the willows which are used for making baskets are called osiers, and those that have woolly leaves are called sallows, the true willows having long thin leaves. All the trees included in the genus belong to the true willows. In the neighbourhood of London, and in several other parts of Great Britain, the young people gather branches of the great sallow on Palm Sunday, which they carry in imitation of palm branches. The flowers of the willow have no petals, but they are ornamental from the rich golden colour of the anthers of their stamens.

In the insect world, the beetles are now particularly abundant. These creatures generally bury themselves in the ground during the winter, but at the first warmth of spring they creep out and seem to enjoy themselves in the beams of the sun. One of the most curious of the beetle tribe is the burying beetle (*Necrophòrus vespillo*), one of the marked peculiarities of which consists in the custom which these beetles have of interring small animals, such as mice and moles, for the purpose of depositing their eggs in the decaying carcase. At first sight it appears impossible that these beetles, which are only of a moderate size, could possibly contrive to bury creatures so much larger than themselves; but the manner in which it is done is very ingenious. The beetle first walks round the dead body, and seems to examine it carefully on every side. It then begins gradually to remove the earth from below the body, which slowly sinks into the hollow thus made, the beetle continuing to work below it till it has descended to a sufficient depth, after which the little labourer covers the body carefully with the loose soil it has thrown out during the process of excavation. The sense of smell of these beetles, like that of many other insects, is extremely delicate, and "no sooner has any of the smaller quadrupeds perished, than one or more of these gravediggers will make their appearance, and in a few hours the corpse will be interred." It may easily be supposed that the remarkable habits of these beetles were not even guessed at for some time; and, indeed, they were not known till 1752, when they were observed by M. Gleditsch, and a very interesting account is given of the mode in which he discovered this curious fact by Messrs. Kirby and Spence. M. Gleditsch had "often remarked that dead moles, when laid upon the ground, especially if upon loose earth, were almost sure to disappear in the course of two or three days, often of twelve hours. To ascertain the cause, he placed a mole upon one of the beds of his garden. It had vanished by the third morning; and on digging where it had been laid, he found it buried to the depth of three inches, and under it four beetles which seemed to have been the agents in this singular inhumation. Not perceiving anything particular in the mole, he buried it again; and on examining it at the end of six days he found it swarming with maggots, apparently the issue of the beetles, which M. Gleditsch now naturally concluded had buried the carcase for the food of their future young. To determine these points more clearly, he put four of these insects into a glass vessel half filled with earth and properly secured, and upon the surface of the earth two frogs. In less than twelve hours one of the frogs was interred by two of the beetles: the other two ran about the whole day, as if busied in measuring the dimensions of the remaining corpse, which on the third day was also found buried. He then introduced a dead linnet. A pair of the beetles were soon engaged upon the bird. They began their operations by pushing out the earth from under the body, so as to form a cavity for its reception; and it was curious to see the efforts which the beetles made by dragging at the feathers of the bird from below to pull it into its grave. The male having driven the female away, continued to work alone for five hours. He lifted up the bird, changed its place, turned it and arranged it in the grave, and from time to time came out of the hole, mounted upon it and trod it under foot, and retired below and pulled it down. At length, apparently wearied with this uninterrupted labour, it came forth and leaned its head upon the earth beside the bird without the smallest motion as if to rest itself, for a full hour, when it again crept under the earth. The next day, in the morning, the bird was an inch and a half under ground, and the trench remained open the whole day, the corpse seeming as if laid out upon a bier, surrounded with a rampart of mould. In the evening it had sunk half an inch lower, and in another day the work was completed and the bird covered. M. Gleditsch continued to add other small dead animals, which were all sooner or later buried; and the result of his experiment was, that in fifty days four beetles had interred in the very small space of earth allotted to them, twelve carcases, viz. four frogs, three small birds, two fishes, one mole, and two grasshoppers, besides the entrails of a fish, and two morsels of the lungs of an ox. In another experiment a single beetle buried a mole forty times its own bulk and weight in two days. It is plain that all this labour is incurred for the sake of placing in security the future young of these industrious insects, along with a necessary provision of food. One mole would have sufficed a long time for the repast of the beetles themselves, and they could have more conveniently fed upon it above ground than below. But if they had left thus exposed the carcase in which their eggs were deposited, both would have been exposed to the imminent risk of being destroyed at a mouthful by the first fox or kite that chanced to espy them."



BURYING BEETLE.

The caterpillar of the hawthorn butterfly is frequently very destructive at this season, feeding upon the young leaves as soon as the buds unfold, and stripping the trees so completely as to give them the appearance of winter even in early spring. The hawthorn butterfly very much resembles the cabbage butterfly; but the veins are black, and the under side of the wings is white, while the veins of the cabbage butterfly are white, and the under side of the wings is of a pale yellow. The hawthorn butterfly's eggs are of a pale yellow, and they are laid on leaves without any covering, but generally in rows close together. The caterpillars, when first hatched, are of a dirty yellow, with a black head, and a black ring just below it, and a brownish-red stripe on each side. They are gregarious, and spin a web on the leaf, under which they live until they have destroyed every portion of the cellular tissue, so that the leaves appear quite stripped off all the trees they have attacked. These caterpillars, however, appear only occasionally, and at intervals of sometimes several years in duration; and as birds are very fond of them, great numbers are devoured. Enough, however, remain to give a most singular appearance to the hawthorn trees which they have attacked, for as they devour the whole of the fleshy part of the leaf, leaving what may be called the skeleton, which serves to support the webs they have spun, the whole of the branches appear covered with a transparent drapery of a most singular description.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'Clock.	SUN. Souths. Height above horizon	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Souths. Height above horizon	MOON. Sets. Morning.	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 1h. 2h. 3h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 9h. 10 11h.	HIGH WATER AT LONDON BRIDGE. Morning	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.		H. M.				H. M.	H. M.	
1	S	*Nicomede*	3 51	2 35	60½	8 4	0 5	4 48	23	9 36		21		5 50	6 10	152
2	S	1st S. aft. Trin.	3 51	2 26	60¾	8 5	0 34	5 33	26¼	10 40		22		6 35	6 55	153
3	M	Length of day 16h 16m	3 50	2 16	60¾	8 6	0 58	6 17	29¾	11 44		☾		7 20	7 50	154
4	Tu	Length of night 7h 43m	3 50	2 6	61	8 7	1 22	7 2	34	Afternoon		24		8 25	9 0	155
5	W	King of Han. b	3 49	1 56	61¼	8 8	1 45	7 47	38½	2 3		25		9 35	10 5	156
6	Th	Alpha Libræ souths 9h 42m P.M.	3 48	1 46	61¼	8 9	2 8	8 34	43	3 13		26		10 35	11 5	157
7	F	Day inc. 8h. 38m.	3 47	1 35	61¼	8 10	2 33	9 23	47½	4 28		27		11 35	At Midnight.	158
8	S	Spica Virginis souths 8h 9m P.M.	3 47	1 24	61½	8 11	3 1	10 16	51¾	5 45		28		No Tide.	0 30	159
9	S	2nd S. aft. Trin.	3 46	1 12	61½	8 11	3 35	11 13	55¼	7 2		29		0 50	1 15	160
10	M		3 46	1 0	61½	8 12	4 17	Afternoon	57½	8 14		○		1 40	2 0	161
11	Tu	*St. Barnabas*	3 45	0 48	61¾	8 13	5 10	1 14	58	9 21		1		2 25	2 48	162
12	W	Trin. Term ends	3 45	0 36	61¾	8 14	6 12	2 17	58	10 16		2		3 10	3 35	163
13	Th	Arcturus souths 8h 40m P.M.	3 45	0 24	61¾	8 15	7 24	3 17	56	11 1		3		3 55	4 20	164
14	F	Length of day 16h 31m	3 45	0 11	61¾	8 16	8 40	4 15	52¾	11 37		4		4 45	5 10	165
15	S	Epsilon Bootis souths 9h 2m P.M.	3 44	After 12 o'clock.	61¾	8 16	9 56	5 9	48¾	Morning.		5		5 35	6 5	166
16	S	3rd S. aft. Trin.	3 44	0 15	61¾	8 16	11 14	6 0	44¼	0 6		☽		6 30	7 0	167
17	M	*St. Alban*	3 44	0 27	62	8 16	Afternoon	6 49	39½	0 29		7		7 30	8 5	168
18	Tu	Alpha Coronæ Borealis sths 9h 41m P.M.	3 44	0 40	62	8 17	1 40	7 36	34¾	0 58		8		8 35	9 15	169
19	W	Alpha Serpentis souths 9h 46m P.M.	3 44	0 53	62	8 17	2 51	8 23	30¼	1 20		9		9 45	10 15	170
20	Th	Acces. Queen Vic.	3 44	1 6	62	8 18	3 59	9 9	26½	1 46		10		10 50	11 20	171
21	F	Proclamation	3 44	1 19	62	8 18	5 7	9 57	23¼	2 10		11		11 50	No Tide.	172
22	S	[Summer com.	3 44	1 32	62	8 19	6 12	10 45	20¾	2 40		12		0 15	0 45	173
23	S	4th S. aft. Trin.	3 45	1 45	62	8 19	7 11	11 33	19	3 13		13		1 5	1 30	174
24	M	*St. John Baptist*	3 45	1 58	62	8 19	8 6	Morning.	—	3 53		●		1 50	2 10	175
25	Tu	[Midsum. Day	3 46	2 10	62	8 19	8 54	0 22	18½	4 36		15		2 30	2 50	176
26	W	Length of day 16h 33m	3 46	2 23	62	8 18	9 34	1 10	18¾	5 29		16		3 5	3 25	177
27	Th	Antares souths 9h 57m P.M.	3 46	2 35	61¾	8 18	10 9	1 58	20	6 26		17		3 45	4 0	178
28	F	Q. Vic. cro. 1838	3 46	2 48	61¾	8 18	10 38	2 44	22	7 25		18		4 15	4 35	179
29	S	*St. Peter*	3 47	3 0	61¾	8 18	11 4	3 29	24¾	8 28		19		4 50	5 10	180
30	S	5th S. aft. Trin.	3 47	3 12	61¾	8 18	11 26	4 14	28¼	9 33		20		5 30	5 45	181

JUNE.

The Sun is situated north of the Equator, and reaches his extreme position in north declination on the 21st. On this day, at 8h. P.M., he passes from the sign Gemini to Cancer (the Crab), having been in the former sign 31 days, 8 hours, and 35 minutes. He rises on the 1st at 1°¾ N. of N.E. by N.; and on the 21st at 4° N. of the same point; and sets on the same days at 1°¼ N., and 4° N. of N.W. by N. respectively. On the 1st day he is 96,375,000 miles distant from the Earth.

The Moon enters Aquarius on the 1st; Pisces on the 3rd; in and near Cetus, passing the boundaries of Pisces and Aries, on the 4th, 5th, 6th, and 7th; in Taurus on the 8th and 9th. She is crossing the Milky Way during the evening of the 10th; is in Gemini on the 11th; enters Cancer on the evening of the 12th; Leo on the 14th; Virgo on the 16th; Libra on the 20th; Ophiuchus on the 22nd; Sagittarius on the 24th; Capricornus on the 26th; Aquarius on the 28th; and Pisces on the 30th.

She is above the horizon when the Sun is below, during the morning hours, for a few days at the beginning of the month, and for several days towards the end of the month; and during the evening hours, from the 12th to the 26th.

She is on the Equator on the 5th, and going north; reaches her extreme north position on the 11th; then begins to move south; crosses the Equator on the 17th, near midnight; and reaches her extreme south position on the 25th.

She is near Saturn on the 5th; Uranus, on the 6th; Mercury, on the 10th; Venus, on the 12th; Mars, on the 14th; and Jupiter, on the 16th.

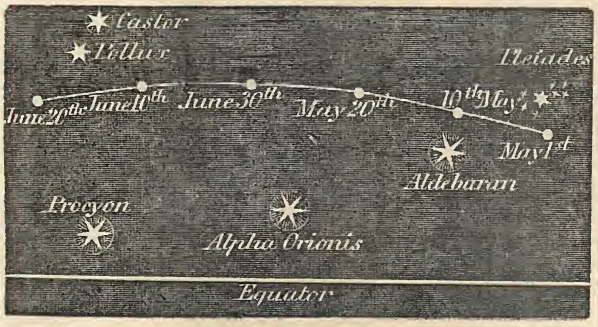
Mercury is in the constellation Taurus all the month, and situated in the Milky Way.

On the 1st day he sets at 8h. 59m., and on the 7th at 8h. 14m. After this time the planet sets before the Sun sets. On the 15th this planet and the Sun rise together. On the 25th Mercury rises at 3h. 3m., being 43 minutes before the Sun; and which interval increases, till, on the last day the planet's rising precedes the Sun by one hour. On the 25th he rises midway between E.N.E. and N.E. by N. He moves westward among the stars till the 21st, and is stationary on the 22nd, and moves slowly eastward on the 23rd. He is near the Moon on the 10th. For his position in the heavens, see the diagram in next month.

Venus is in the constellation Gemini till the 17th, and in that of Cancer from the 18th.

She is an evening star; and sets on the 1st, at 10h. 3m. P.M.; on the 15th, at 10h. 13m. P.M.; and on the last day at 10h. 5m. P.M. Till the 25th she sets between the N.W. by N. and the N.W.; and on the 26th at the N.W. by N.

PATH OF VENUS FROM MAY 1 TO JUNE 20, 1850.

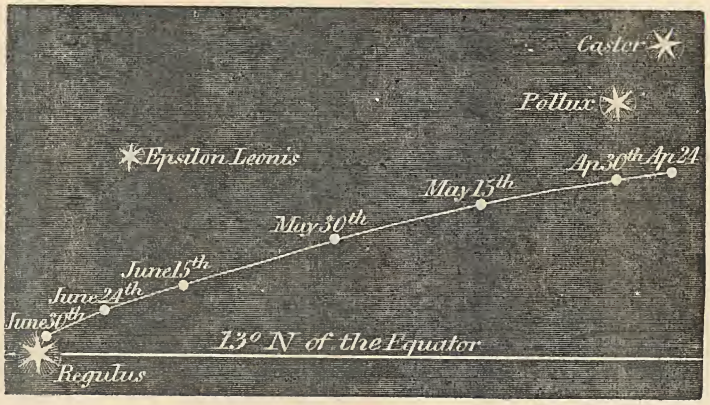


Scale, 24 degrees to one inch.

Mars is in the constellation Cancer till the 20th, on which day he passes into Leo.

He is an evening star, and sets on the 1st at 0h. 2m. A.M.; on the 15th, at 11h 20m. P.M.; and on the last day at 10h. 40m. P.M.; near the N.W by N. at the beginning of the month, and at the W.N.W. on the 29th. He is moving eastward among the stars; and is near the moon on the 14th. His altitude above the horizon when he souths on the 1st is 57°¾, and on the last day is 52°¾. His

PATH OF MARS FROM APRIL 24 TO JUNE 30, 1850.



Scale, 12 degrees to one inch.

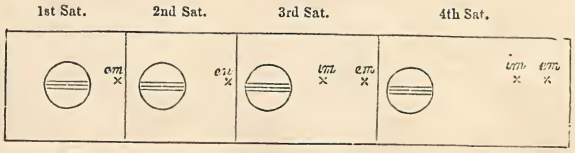
path in the heavens is shewn in the annexed diagram, which is continued from that in March.

Jupiter is in the constellation Leo throughout the month.

He sets on the 1st day at 1h. 10m. A.M., and on the last day at 11h. 19m. P.M., at the W. by N. point of the horizon. His altitude on the 1st is 46°, and is 44°¾ on the last day. He moves slowly eastward among the stars, and is near the Moon on the 16th. For his path in the heavens, see the diagram in last month.

Jupiter's Satellites.—A few eclipses only are visible. The relative position of the Satellite to Jupiter at the instant of the eclipse is shewn in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Pisces throughout the month.

He is a morning star; and rises near W. by N. on the 1st, at 2h. 3m. A.M.; on the 15th, at 1h. 10m. A.M.; and on the last day, 13m. after midnight. He souths at an altitude of 44°¼ nearly. He is near the Moon on the 5th. For his path in the heavens see the diagram in September.

Uranus is in the constellation Aries throughout the month.

He rises on the 1st at 2h. 12m. A.M., and on the last day at 0h. 20m. A.M. He is near the Moon on the 6th.

Neptune rises on the 1st at 0h. 40m. A.M.; on the 15th, at 11h. 42m. A.M.; and on the last day, at 10h. 51m. A.M., midway between the E. by S. and the E.S.E. points of the horizon.

points of the horizon. She is moving eastward among the stars; is in perihelion on the 2nd, and is near the moon on the 12th. Her path among the stars is shewn in the annexed diagram, which is a continuation of that in March.

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Morning.	Neptune. Morning
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 51	1 38	4 11	6 23	8 32	5 59
6	0 23	1 45	4 3	6 5	8 14	5 39
11	Morning	1 52	3 55	5 47	7 56	5 19
16	11 23	1 58	3 47	5 29	7 37	5 0
21	10 59	2 4	3 39	5 11	7 19	4 40
26	10 42	2 10	3 31	4 54	7 1	4 20
30	10 35	2 14	3 24	4 40	6 46	4 1

JUPITER'S SATELLITES.

Eclipses of

1st Sat. Emersion.	3rd Sat. Im. I.	3rd Sat. Emer. E.
D. H. M.	D. H. M.	D. H. M.
9 10 6 P.M.	17 9 36 P.M. E.	
	24 10 32 P.M. I.	
2nd Sat.		
11 11 32 P.M.		
	4th Sat.	
	17 10 25 P.M. I.	

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
42 Aquarii	6	2 1 22 A.M.	Bright	24° N. &
		2 2 35 A.M.	Dark	76° N.
Chi Leonis	4	15 11 57 P.M. At the time of Emersion the Moon will be below the horizon	Dark	25° N. & 90° N.
29 Ophiuchi	6	23 1 56 A.M.	Dark	4° N. &
		23 2 32 A.M.	Bright	70° N.
70 Aquarii	6	30 0 37 A.M.	Bright	14° N. &
		30 1 47 A.M.	Dark	79° N.

TIMES OF CHANGES OF THE MOON, And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

	D.	H.	M.	
Last Quarter	3	3	47	A.M.
New Moon ..	10	7	20	A.M.
First Quarter	16	10	23	P.M.
Full Moon ..	24	2	10	P.M.
Perigee ..	11	7		P.M.
Apogee ..	27	4		A.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	MERCURY. Right Ascension	MERCURY. Declination North.	VENUS. Right Ascension	VENUS. Declination North.	MARS. Right Ascension	MARS. Declination North.	JUPITER. Right Ascension	JUPITER. Declination North.	SATURN. Right Ascension	SATURN. Declination North.	URANUS. Right Ascension	URANUS. Declination North.	NEPTUNE. Right Ascension	NEPTUNE. Declination South.
1	5h. 29m	22° 29′	6h. 16m	24° 40′	8h. 50m	19° 15′	11h. 2m	7° 34′	1h. 10m	4° 53′	1h. 48m	10° 32′	22h. 36m	9° 38′
6	5 22	20 57	6 43	24 30	9 2	18 24	11 4	7 25	1 11	5 2	1 48	10 36	22 36	9 38
11	5 10	19 29	7 9	24 2	9 13	17 31	11 5	7 14	1 13	5 11	1 49	10 41	22 36	9 38
16	5 0	18 28	7 36	23 17	9 25	16 35	11 7	7 2	1 14	5 19	1 50	10 45	22 36	9 39
21	4 56	18 8	8 1	22 16	9 36	15 36	11 9	7 49	1 16	5 26	1 51	10 49	22 36	9 40
26	4 59	18 31	8 27	20 59	9 48	14 35	11 11	6 34	1 17	5 32	1 51	10 52	22 36	9 41

JUNE.—WHITEBAIT FISHING OFF GREENWICH.

NOTES ON NATURAL HISTORY.—JUNE.

THE month of June is one of the most cheerful in the year, for in it all nature seems in full enjoyment of the delights of summer before the oppressive heat of July and August is felt. In every direction crowds of young birds are trying their wings in short flights, chirping and twittering to each other, as though they were talking of the wonderful feat they were accomplishing, in venturing for the first time to fly alone. The blackcap hatches its young about this period, and it

BLACKCAP WARBLER.

seems particularly partial to gardens and orchards; where, during the whole period of incubation, it makes the air resound with its harmonious notes. It has usually a full, sweet, and yet deep and loud song, and it expresses such a great variety of modulations, as to exceed every other bird in that respect, except the nightingale. One of its notes is a particularly long, soft shake, which sinks gradually into the lowest strain, though every note is perfectly distinct; till, just as it is dying away, the cadence rises and swells into a full burst of loud and joyful melody. When the blackcap sings, its throat is wonderfully distended, and its little body apparently quivers with intense delight. The nest of this bird is generally placed in some low bush or shrub, and it is built in a very firm and compact manner. The eggs are four or five in number, of a pale reddish brown, mottled with spots of a darker hue. The blackcap is very fond of ivy berries, and generally makes its nest in an ivy bush, when one is to be met with not too high from the ground. Large flocks of young redstarts are frequently seen at this season, and they attract attention by their splendid plumage of grey, red, and black. The redstart is very fond of building in crevices in old walls, or in vases, or broken parts of statues, or any architectural ornament which may be placed in a garden. "If we visit, in the summer season," says Mr. Slaney, "any one of those old castles or monastic ruins, which give so much additional interest to many parts of our country, whilst the daws respond to each other with their appropriate melancholy call, as we walk round the ruined walls and fallen fragments, this elegant bird will often flit before us; and, standing on a broken battlement or moss-grown pillar, shake his bright plumage, as if in triumph over the works of man!" It is said that when the redstart first arrives in spring, it mounts to the top of the loftiest tree, where it will sit and sing for hours, beginning at daybreak. The song of this bird is short, and not very striking, but it will sing at night as well as in the daytime, and may be taught any tune that is whistled to it. The redstart is an active and restless bird, and, when singing, it shakes its tail with a rapid and tremulous motion.

YELLOW BIRD'S-NEST.

The flowers of June comprise all the most beautiful of the floral world. There are, however, some plants which are common and even beautiful, but yet are comparatively little known; and the most remarkable of these are the different kinds of parasites, such as the dodder, the mistletoe, the bird's-nest, and several others. Of these parasites, the mistletoe is, perhaps, the most common. It grows on various kinds of trees, particularly on the hawthorn and the apple; and, though but very rarely, on the oak. It is said that when the Druids consecrated a grove of oak-trees, they always planted an apple orchard near it, in order that there might be a chance of the mistletoe spreading from the apple-trees to the oaks. When the Druids found the mistletoe growing on the oak, they went in solemn procession to cut it, which was always done with a golden knife, and the mistletoe was received in a piece of white linen, that had never been used for any other purpose. The Saxons, also, revered the mistletoe; and the following curious legend is related in the "Edda" respecting it. Balder (the Saxon Apollo) wishing to visit earth, Friga, his mother (the Saxon Venus), was so afraid that some accident would happen to him, that she made everything that belonged to the earth, the air, or the water take an oath not to injure him. Unfortunately, however, she forgot the mistletoe, which belongs neither to the earth, nor the air, nor the water; and the evil spirit Loke, who wished to destroy Balder, killed him with a large branch of mistletoe. All nature was instantly overwhelmed with grief for the loss of the god of the sun; but at the end of three months, Thor (who was the Jupiter of the Saxons) restored Balder to life and placed the mistletoe under the sole control of Friga, that it might never injure her again. It was probably from the mistletoe being dedicated to the Saxon goddess of love, that it is hung up at Christmas, in country places, for people to kiss under. It was formerly supposed that the mistletoe could not be sown, but it is now found that a berry may be inserted in a crack in the bark of a tree, and then, if a piece of oiled paper be tied loosely over it, to preserve it from the birds, it will germinate.

Occasionally fields of clover are covered all over with a curious twining plant, which binds the stems together, and withers the leaves. The plant itself is pretty, from its pink stems, which twine together like a number of threads, and its elegant little flowers, which are also pinkish; but it is a most destructive weed, and destroys everything it takes hold of. It grows at first from the ground, but as soon as it has twisted itself round any unfortunate plant, it detaches its root from the earth, and draws all its nourishment from the plant it has taken hold of, and which it soon destroys. The yellow bird's-nest (*Monótropa Hypópithys*) only vegetates on the roots of beech and fir-trees, and seems very seldom to perfect its seeds, which may account for the comparative scarcity of the plant. It has no leaves, but their place is supplied by brownish scales. The flowers are of a dingy yellow, at first all drooping on one side, but becoming erect in maturity. When dry the flowers smell like those of the common primrose; and they appear in June and July.

In June insects are most abundant of every kind and description, as some are just bursting into the perfect state, while others are caterpillars or pupæ. It is, indeed, almost impossible to enumerate them.

> Though numberless these insect tribes of air,
> Though numberless each tribe and species fair,
> All have their organs, arts, and arms, and tools,
> And functions exercised by various rules.
> Their peaceful hours the loom and distaff know
> But war, the force and fury of the foe,
> The spear, the falchion, and the martial mail,
> And artful stratagem, where strength may fail.—HENRY BROOKE.

Of all the stratagems employed by insects, perhaps the most curious are those of the ant-lion (*Myrmèleon*). This insect in the larva state bears considerable resemblance to the wood-louse; and, as Messrs. Kirby and Spence observe, "if we looked only at its external conformation and habits, we should be apt to conclude it one of the most helpless animals in the creation. Its sole food is the juices of other insects, particularly ants; but, at the first view, it seems impossible that it should ever secure a single meal. Not only is its pace slow, but it can walk in no other direction than backwards; you may judge, therefore, what would be such a hunter's chance of seizing an active ant. Nor would a stationary posture be more favourable; for its grim aspect would infallibly impress upon all wanderers the prudence of keeping at a respectful distance." In this helpless condition instinct teaches the ant-lion to accomplish by artifice what it would otherwise have been quite unequal to. The female generally lays her eggs in a loose sandy soil, so that as soon as the larva is hatched it finds itself in the situation most suitable to it. Its first effort is to trace in the sand a circle; and this being done with wonderful exactness, it proceeds to excavate the cavity by throwing out the sand. "Placing itself in the inside of the circle which it has traced, it thrusts the hind part of its body under the sand, and with one of its fore-legs serving as a shovel, it charges its flat and square head with a load, which it immediately throws over the outside of the circle with a jerk strong enough to carry it to the distance of several inches." Walking backwards, and constantly repeating this process, it soon arrives at the part of the circle from which it set out. It then traces another furrow in the same manner, and then others, till it has excavated a conical hole rather more than two inches deep, about three inches wide at the top, and contracting to a point at the bottom. In the course of its labours, the ant-lion frequently meets with small stones, which it places on its head one at a time, and jerks off over the margin of the pit. If, however, the stone is too large, it contrives with great difficulty to get it on its back, and, keeping it in a "steady position by an alternate movement of the segments which compose that part, it carefully walks up the ascent with its burthen, and deposits it on the outside of the margin. When, as occasionally happens, the stone is round, the labour becomes more difficult and painful; and a spectator, watching the motions of the ant-lion, feels an inexpressible interest in its behalf. He sees it, with vast exertion, elevate the stone, and begin its arduous retrograde ascent: at every moment the burthen totters to one side or the other: the adroit porter lifts up the segments of its back to balance it, and has already nearly reached the top of the pit, when a stumble or a jolt mocks all its efforts, and the stone tumbles headlong to the bottom. Mortified, but not despairing, the ant-lion returns to the charge—again replaces the stone on its back—again ascends the side, and artfully avails itself, for a road, of the channel formed by the falling stone, against the sides of which it can support its load." In this manner it frequently tries without success, renewing its efforts again and again, till at last it either succeeds or abandons the hole in despair. When all is finished, the ant-lion buries itself in the sand at the bottom of its pit, only leaving exposed its two large horn-like forceps, with which it seizes its prey. No sooner does an ant or any other insect approach the edge of the cleverly-contrived slope, than the sand gives way, and the unfortunate insect, rolling to the bottom, is instantly seized, and, if not sufficiently powerful to make any resistance, it is as instantly killed, and its body, after it has been sucked dry, is tossed by a jerk of the head of the ant-lion beyond the immediate boundary of the cavity. Sometimes, however, it happens that a large and vigorous winged insect—such as a wasp, a bee, or a beetle—tumbles headforemost into the pit; and, when this is the case, a tremendous battle ensues, and "the result at last is, that either the ant-lion is dragged out of its den, and stung to death, or dropped upon the ground, and left a prey to birds, or that the winged insect is maimed, disabled, drawn into the sand, and slain. If an insect incapable of flight, or from its situation unable to use its wings, but of larger size than the *Myrmèleon* deems it prudent at once to seize upon, chances to fall into the snare, it is overwhelmed in its attempts to reascend by repeated showers of sand, which its enemy directs upon it with unerring aim." The showers of sand are thrown up by the head of the insect, and it is astonishing the quantity it conveys each time, and the force and precision with which it hurls its ammunition on the foe.

THE ANT-LION.

M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'clock.	SUN. Height above horizon.	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning.	MOON. Height above horizon.	MOON. Sets. Morning.	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 1h. 2h. 3h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 9h. 10h. 11h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	M	[Visit. B.V. M.	3 49	3 23	61¾	8 18	11 49	4 57	32¼	10 37		21		6 5	6 25	182
2	Tu	Ox. Act. & C. co.	3 49	3 35	61½	8 17	Morning.	5 41	36½	11 45		☾		6 50	7 10	183
3	W	Dog Days begin	3 50	3 46	61½	8 17	0 10	6 26	41	Afternoon		23		7 40	8 5	184
4	Th	*Trans. St. Martin*	3 51	3 57	61½	8 16	0 35	7 13	45½	2 5		24		8 40	9 15	185
5	F	Camb. Term ends	3 52	4 8	61¼	8 16	1 0	8 3	49¾	3 20		25		9 45	10 15	186
6	S	Ox. Term ends	3 53	4 18	61¼	8 15	1 30	8 56	53½	4 35		26		10 50	11 20	187
7	S	6th S. aft. Trin.	3 54	4 28	61¼	8 15	2 7	9 53	56½	5 49		27		11 50	No Tide.	188
8	M	Fire Insur. due	3 55	4 38	61	8 14	2 54	10 54	58¼	7 0		28		0 20	0 50	189
9	Tu	Antares souths 9h 10m P.M.	3 56	4 47	61	8 14	3 50	11 57	58½	8 0		○		1 15	1 40	190
10	W	Alpha Herculis souths 9h 54m P.M.	3 57	4 56	60¾	8 13	5 0	Afternoon	57¼	8 52		1		2 6	2 30	191
11	Th	*Old St. Peter*	3 58	5 5	60¾	8 13	6 15	2 1	54½	9 39		2		3 0	3 25	192
12	F	Alpha Ophiuchi souths 10h 6m P.M.	3 59	5 13	60½	8 12	7 35	2 59	50½	10 7		3		3 50	4 10	193
13	S	Alpha Lyræ souths 11h 6m P.M.	4 0	5 21	60¼	8 11	8 56	3 53	46	10 36		4		4 35	5 0	194
14	S	7th S. aft. Trin.	4 1	5 28	60¼	8 10	10 13	4 44	41¼	11 2		5		5 25	5 50	195
15	M	*St. Swithin*	4 2	5 34	60	8 9	11 28	5 33	36½	11 26		☽		6 15	6 40	196
16	Tu	Beta Lyræ souths 11h 7m P.M.	4 3	5 40	60	8 8	Afternoon	6 21	31¾	11 52		7		7 5	7 30	197
17	W	Length of day 16h 3m	4 4	5 46	59¾	8 7	1 50	7 8	27¾	Morning.		8		8 0	8 30	198
18	Th	Gamma Aquilæ souths 11h 53m P.M.	4 5	5 51	59½	8 6	2 58	7 55	23¾	0 16		9		9 5	9 35	199
19	F	Alpha Aquilæ souths 11h 53m P.M.	4 6	5 55	59½	8 5	4 3	8 42	21½	0 44		10		10 10	10 40	200
20	S	*St. Margaret*	4 7	5 59	59¼	8 4	5 5	9 30	19½	1 15		11		11 15	11 50	201
21	S	8th S. aft. Trin.	4 9	6 2	59	8 3	6 0	10 18	18½	1 52		12		No Tide.	0 20	202
22	M	*Magdalene*	4 10	6 5	58¾	8 2	6 51	11 7	18½	2 34		13		0 45	1 10	203
23	Tu	Beta Aquilæ souths 11h 43m P.M.	4 11	6 7	58¾	8 0	7 33	11 55	19½	3 25		14		1 35	1 55	204
24	W	Alpha Herculis souths 9h 0m P.M.	4 12	6 9	58½	7 58	8 10	Morning.	—	4 19		●		2 15	2 30	205
25	Th	*St. James*	4 14	6 10	58¼	7 56	8 42	0 41	21¼	5 17		16		2 50	3 10	206
26	F	*St. Anne*	4 15	6 10	58	7 54	9 9	1 27	23¾	6 19		17		3 25	3 40	207
27	S	Alpha Ophiuchi souths 9h 7m P.M.	4 17	6 10	57¾	7 53	9 32	2 12	27	7 24		18		3 55	4 15	208
28	S	9th S. aft. Trin.	4 19	6 10	57½	7 51	9 54	2 56	30¾	8 29		19		4 30	4 45	209
29	M	Length of night 8h 31m	4 21	6 8	57¼	7 50	10 16	3 39	34¾	9 34		20		5 5	5 20	210
30	Tu	Alpha Lyræ souths 9h 59m P.M.	4 23	6 6	57	7 49	10 39	4 23	38¼	10 41		21		5 40	5 55	211
31	W	Day dec. 1h. 12m.	4 24	6 4	56¾	7 47	11 2	5 8	43¾	11 49		22		6 15	6 40	212

JULY.

The Sun is situated N. of the Equator, and is moving south. On the 23d day, at 6h. 53m. A.M., he passes from the sign Cancer to Leo (the Lion), having been in the former sign 31 days, 10 hours, and 53 minutes. He rises on the 19th at N.E. by N., and sets at N.W. by N. On the 3rd day, his distance from the earth is 96,592,000 miles, being the greatest in the year.

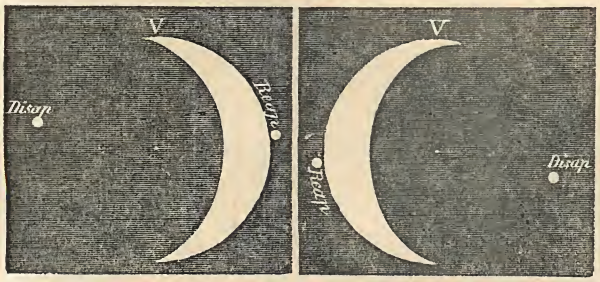
The Moon passes into Cetus near midnight on the 1st, and moves near the boundaries of this constellation, and those of Pisces and Aries, till the 5th. After noon on this day she enters Taurus, crosses the Milky Way on the 8th, and enters Gemini; she passes into Cancer on the 10th, Leo on the 11th, Virgo on the 13th, Libra on the 17th, Ophiuchus on the 19th, Sagittarius on the 21st, Capricornus on the 24th, Aquarius on the 26th, Pisces on the 27th, and Cetus on the 29th.

She is above the horizon when the Sun is below, during the morning hours for a few days at the beginning, and for several days at the end of the month, and during the evening hours from the 11th to the 25th.

She is on the Equator on the 2nd, at her extreme north position on the 9th, on the Equator again on the 15th, at her extreme south position on the 22nd, and a third time on the Equator on the 30th.

She is near Saturn on the 3rd; Uranus, on the 4th; Mercury, on the 8th; Venus, on the 11th; Mars, on the 12th; Jupiter, on the 13th; Saturn, on the 30th; and Uranus, on the 31st.

OCCULTATION OF MARS BY THE MOON, JULY 12, 1850, AS SEEN THROUGH A TELESCOPE WHICH

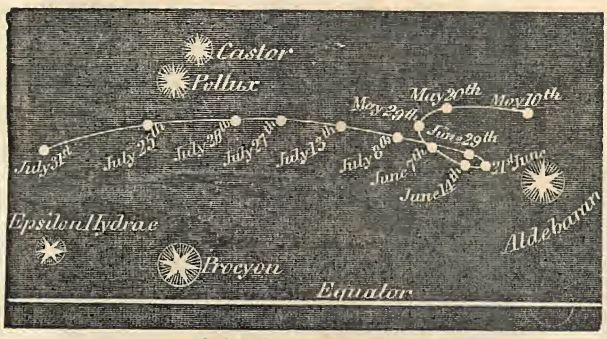


Does not invert. Does invert.

The disappearance will take place at the unillumined limb of the Moon, and the reappearance at the illumined limb, the former at 5h. 28m. P.M., and the latter at 6h. 33m. P.M.: at these times the Sun is above the horizon, and, therefore, these phenomena cannot be seen without the assistance of a telescope.

Mercury is in the constellation Taurus till the 9th, in Gemini from the 10th to the 24th, and in Cancer after the 25th.

PATH OF MERCURY FROM MAY 10 TO JULY 31, 1850.



Scale, 24 degrees to one inch.

He is a morning star, and rises on the 1st at 2h. 45m.; on the 10th, at 2h. 35m: on the 20th, at 3h. 2m.; and on the last day, at 4h. 14m. His times of rising precede those of sunrise by 1h. 4m. on the 1st; by 1h. 22m. on the 10th, 11th, and 12th; by 1h. 21m. on the 13th; by 1h. 5m. on the 20th; and by 10m. on the last day. He rises throughout the month a little north of the N.E. by N. point of the horizon. He moves eastward among the stars during the month, is at his greatest west elongation on the 4th, is near the Moon on the 8th, and is in superior conjunction with the Sun on the last day. His motion among the stars is shown in the preceding diagram, and his telescopic appearance this month is shown in December.

Venus is in the constellation Cancer till the 4th, and in that of Leo from the 5th.

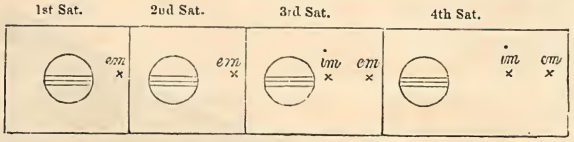
She is an evening star; and sets on the 1st, at 10h. 4m. P.M.; on the 15th, at 9h. 43m. P.M.; and on the last day, at 9h. 12m. P.M.; on the 16th at the W.N.W., and on the 31st at the W. by N. points of the horizon. She is moving eastward among the stars; is near the Moon on the 11th, Regulus on the 16th, and Mars on the 31st. For her path among the stars see the diagram in next month.

Mars is in the constellation Leo throughout the month.

He is an evening star; and sets on the 1st at 10h. 37m. P.M.; on the 15th, at 9h. 56m. P.M.; and on the last day at 9h. 9m. P.M. He is moving eastward among the stars; is near Regulus on the 1st, the Moon on the 12th, and Venus on the last day. His altitude above the horizon, when he souths on the 1st, is 52°, and on the last day is 45°. For his path among the stars see the diagram in next month.

Jupiter is in the constellation Leo till the 29th, on which day he passes into Virgo. He sets on the 1st, at 11h. 15m. P.M.; and on the last day, at 9h. 26m. P.M., at the W. by N. point of the horizon. His altitude at the time of southing on the 1st is 44°¾; and on the last day is 42°¾. He moves slowly eastward among the stars, and is near the Moon on the 13th. For his path among the stars during this month see the diagram in May.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Pisces throughout the month. He rises E. by N. on the 1st, at 9 minutes after midnight; on the 15th, at 11h. 11m. P.M.; and on the last day at 10h. 10m. P.M. After these times he is visible throughout the night. He souths at an altitude of 41°½ nearly. He is stationary among the stars from the middle of the month, and is near the Moon on the 3rd, and again on the 30th. (See the diagram in September).

Uranus is in the constellation Aries throughout the month. He rises on the 1st, at 0h. 15m. A.M.; and on the last day, at 10h. 15m. P.M. He is near the Moon on the 4th, and again on the 31st.

Neptune rises on the 1st, at 10h. 47m. P.M.; on the 15th, at 9h. 54m. P.M.; and on the last day, at 8h. 48m. P.M.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

(*Continued from page* 17.)

to fall daily behind the stars. If we observe the altitude of a group of stars above the eastern horizon at sunset, we shall find, on examining the position of the same stars a few days afterwards, that its elevation is increased, and that it has approached towards the meridian. After an interval of three months, the same group of stars would be on the meridian at the time of sunset; and, after this time, it will continue to advance nearer to the Sun, till it is lost in his splendour. After being invisible for some time, it will become visible in the morning, and situated westward of the Sun; and day by day this distance will increase, till, at the end of the year from the time of the first observation, their relative positions will be the same as on the first examination.

The path of the Sun will be seen, by referring to our monthly account, to be continuous in one direction, and oblique among the stars. About the 21st of March, the Sun is situated on the Equator; and, after this time, his north declination and his altitude above the horizon when southing, increase day by day (see the Calendar pages), till about June 22, when he reaches his greatest north

(*Continued on page* 33.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Morning.	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Morning.	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	10 34	2 15	3 22	4 36	6 42	4 0
6	10 33	2 19	3 14	4 19	6 23	3 40
11	10 41	2 23	3 6	4 2	6 4	3 20
16	10 57	2 26	2 58	3 46	5 46	3 0
21	11 18	2 29	2 49	3 29	5 26	2 41
26	11 43	2 31	2 41	3 12	5 7	2 21
31	Aftern.	2 33	2 33	2 56	4 48	2 1

JUPITER'S SATELLITES.

Eclipses of 1st Sat Emersion.			Eclipses of 2nd Sat. Emersion.		
D.	H.	M.	D	H.	M.
2	10	19 P.M.	6	8	40 P.M.
18	8	37 P.M.			

OCCULTATIONS OF STARS BY THE MOON.

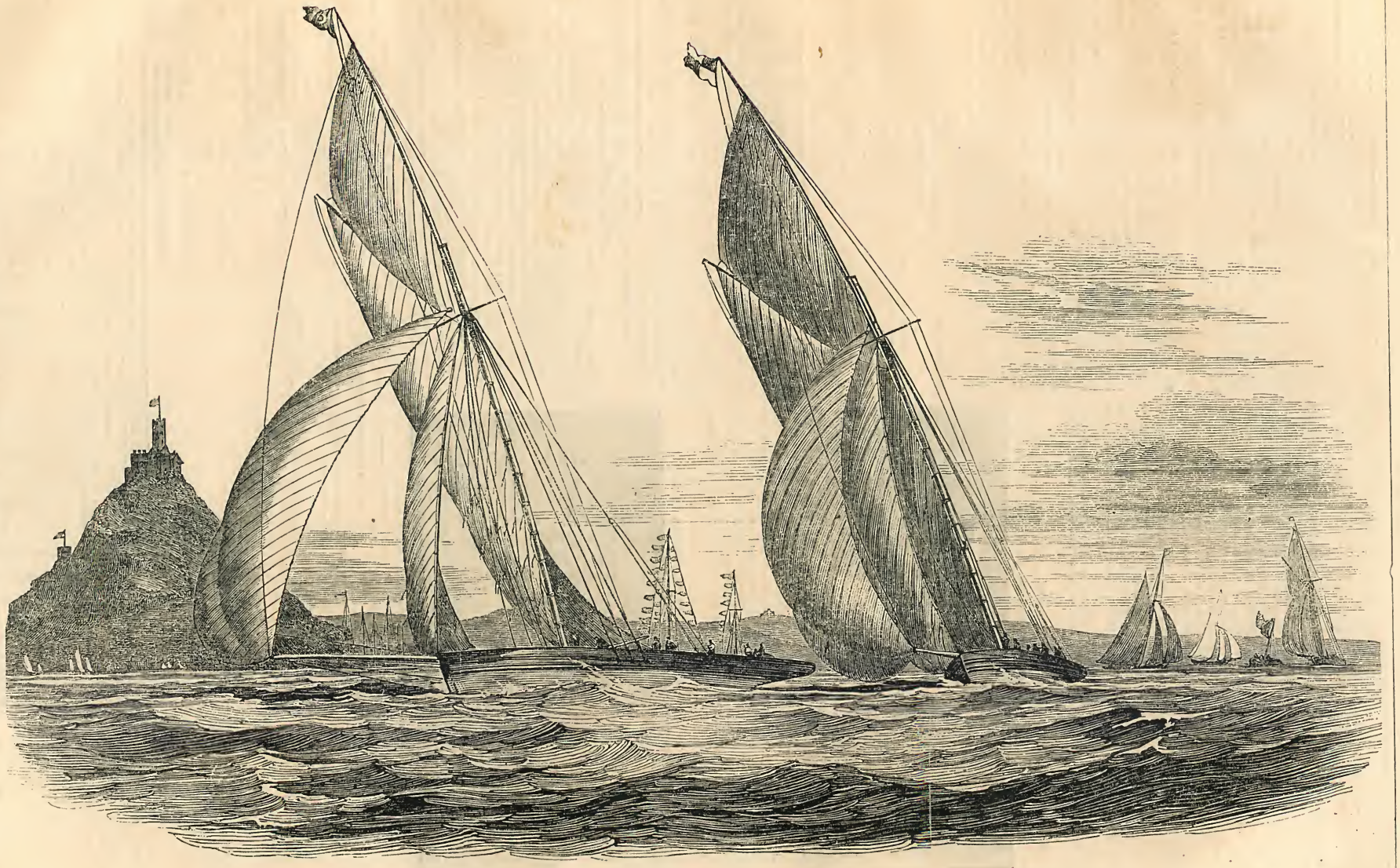
Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
Mars		12 5 28 P.M.	Dark	8° N. &
		12 6 33 P.M.	Bright	90° N.
		15 11 15 P.M.		
65 Virginis	6	Below the horizon at the time of Emersion.	Dark	49° N. & 86° N.
21 Sagittarii	6	21 10 22 P.M.	Dark	70° N. &
		21 11 13 P.M.	Bright	69° N.
19 Capricorni	6	24 9 6 P.M.	Dark	36° N. &
		24 10 6 P.M.	Bright	72° N.

TIMES OF CHANGES OF THE MOON, And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

Last Quarter	2D.	5H.	58M	P.M.
New Moon ..	9	2	27	P.M.
First Quarter	16	6	41	A.M.
Full Moon	24	5	24	A.M.
Perigee ..	10	3		A.M.
Apogee ..	24	10		A.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination North.	Venus. Right Ascension	Venus. Declination North.	Mars. Right Ascension	Mars. Declination North.	Jupiter. Right Ascension	Jupiter. Declination North.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
1	5h.10m	19° 28′	8h.51m	19°28′	9h.59m	13°31′	11h.14m	6° 18′	1h.18m	5° 37′	1h. 52m	10° 55′	22h. 36m	9°42′
6	5 30	20 44	9 16	17 44	10 11	12 26	11 16	6 1	1 19	5 41	1 52	10 58	22 36	9 43
11	5 57	22 1	9 39	15 48	10 22	11 18	11 19	5 43	1 20	5 45	1 53	11 0	22 35	9 45
16	6 33	22 53	10 2	13 43	10 34	10 8	11 22	5 24	1 20	5 47	1 53	11 2	22 35	9 47
21	7 14	22 59	10 25	11 29	10 45	8 57	11 25	5 4	1 21	5 49	1 53	11 3	22 35	9 49
26	7 58	22 0	10 47	9 9	10 57	7 44	11 28	4 43	1 21	5 50	1 54	11 4	22 35	9 51



JULY.—YACHTING OFF MOUNT'S BAY.

NOTES ON NATURAL HISTORY.—JULY.

Now comes July, and with his fervid noon
Unsinews labour. The tired mower sleeps;
The weary maid rakes feebly; the warm swain
Pitches his load reluctant; the faint steer,
Lashing his sides, draws sulkily along
The slow encumber'd wain in midday heat.

In July the heat of the weather has generally become so oppressive that all nature appears languid; the very birds are nearly all silent, and only the robin and the wren, *with some very few exceptions*, continue to sing at all after the first fortnight in July. The birds that are heard at this season generally, indeed, sound strange and unnatural. The chiff-chaff, which at other times only repeats the shrill and monotonous two notes which have gained it its name, was heard by Mr. Jenyns, in July, to utter a singular kind of whistle, which it repeated several times in succession. Nearly all the young birds are hatched at this season; but Mr. Jenyns informs us he has found the nest of the tree-pipit (or, more probably, the meadow-pipit) on the grass as late as the middle of July. The tree-pipit, or titlark, is a kind of lark, the male bird of which has a very agreeable song; though, as Mr. Yarrell observes, "it is perhaps more attractive from the manner in which it is given than the quality of the song itself. He generally sings while perched on the top of a bush, or one of the upper branches of an elm tree standing in a hedge-row, from which, if watched for a short time, he will be seen to ascend on quivering wing about as high again as the tree, then, stretching out his wings and expanding his tail, he descends slowly by a half-circle, singing the whole time, to the same branch from which he started, or to the top of the nearest other tree; and so constant is this habit with him, that, if the observer does not approach too near so as to alarm him, the bird may be seen to perform this same evolution twenty times in half an hour." The titlarks walk on the ground, like the wagtails and the larks. The meadow-pipit is smaller than the other species; and, instead of singing on a tree, it places itself on a little hillock or a large stone, and moves its tall up and down like a wagtail. This bird always builds in the grass, and lays a little dried grass over its nest to conceal it. The rock-pipit inhabits low flat shores near the sea, "where it feeds on marine insects, sometimes seeking its food close to the edge of the retiring tide;" and sometimes busily engaged in turning over and examining sea-weed, apparently in search of small crabs or other similar crustacea.

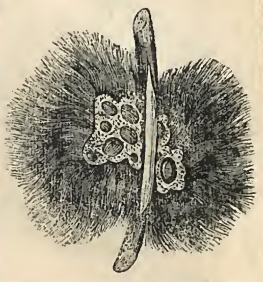
July is the month for gathering the leaves of the woad (*Isàtis tinctòria*). It is cultivated, as its leaves are applied in dyeing thread, in some parts of England; but that which is used for dyeing cloth is brought principally from the Canary Islands and Spain and Sicily. It was formerly grown in great abundance in the south of Somersetshire; and it is said that the name of Glastonbury is derived from the Celtic word *glas*, blue. The ancient Britons are reported to have painted their bodies with the blue obtained from this plant, and hence they received their name, as *Britho* is the Celtic word for to paint. The plant is a biennial, and the seeds that are sown in the July of one year produce leaves in the July of the following year in a fit state for using. When the leaves are gathered, they are steeped in water till all the fleshy matter is separated from the fibrous part; the pulp is then suffered to ferment, and the water being partly strained and partly evaporated from it, the substance, when dry, is cut into pieces about an inch square, and packed in casks or sacks for sale. It is principally used for dyeing woollen substances not only blue, but black; as all the black cloth that is made is dyed blue before it is dyed black, to prevent it from turning brown. The woad, though used in dyeing blue, has yellow flowers, which are rather ornamental. It is now comparatively very little cultivated, as it requires a very rich soil to bring the leaves to perfection; and, unless they are fleshy and succulent, they produce very little colouring matter. On this account its cultivation is so expensive, that indigo, which is produced from the leaves of the *Indigófera* (a leguminous plant growing in the East Indies), can be obtained more cheaply, and it is, therefore, generally preferred.

WOAD.

Cruciferous plants, such as the wild cabbage, the wild turnip, and the wild mustard, are generally in flower in this month; and, as their flowers are usually yellow, they give a peculiarly gay and cheerful appearance to the hedge-rows and road-sides at this season. All the cruciferous plants are edible, and though some of them are very pungent, they are far from disagreeable to the taste, and are generally considered very wholesome. They are all known by their flowers consisting of four petals, disposed in the form of a Greek cross. The umbelliferous plants, on the other hand, which are known by their flowers forming large heads, like the parsley and the meadow-sweet, are nearly always poisonous when in a wild state; though they are rendered edible, and even wholesome, by cultivation. The celery and the carrot are striking examples of this. The celery is poisonous in a wild state; and its stalks are tough and leathery. The wild carrot has a root so slender that it was at first thought it was scarcely possible to be the same plant as that cultivated in gardens. M. Vilmorin, however, of Paris, contrived, by cultivating the wild plant and raising several generations from its seeds, to obtain carrots fit for the table. In this way, no doubt, many of our popular vegetables have been introduced, of which the origin now is totally unknown. As a proof of the wonders which may be effected by cultivation, it may be mentioned that all the kinds of cabbage, greens, broccoli, and cauliflower have been raised from the same stock, and that they are only sub-varieties of the same species.

At this season of the year, rose-trees have very often curious excrescences on the branches, which look like a tufted lichen, and to which the old naturalists gave the name of *bedeguar*. These excrescences consist of numerous reddish, moss-like fibres, quite dissimilar from the leaves of the plant, and each excrescence is sometimes the size of a hen's egg. When cut open, it will be found that the centre of this hairy mass consists of from ten to a dozen cells all growing together, each containing the maggot of a kind of gnat (*Cynips*). This gnat, or gall-insect, pierces the bark of the rose-tree with its ovipositor, and lays its eggs just within the bark, or, rather, in the soft parts of the plant; and these having their juices interrupted, bulge out into a kind of tumour; while the bark, separating into its woody fibres, forms a kind of fringe, which covers the tumour. The perfect insect is a most fearful-looking gnat. Gnats are at this season very abundant. The month of July is generally remarkably moist, and as it is also warm, it is very favourable to the increase of these creatures, who have been always observed to bite most in the warm moist weather.

LARVA AND PERFECT INSECT OF THE EGLANTINE GALL.

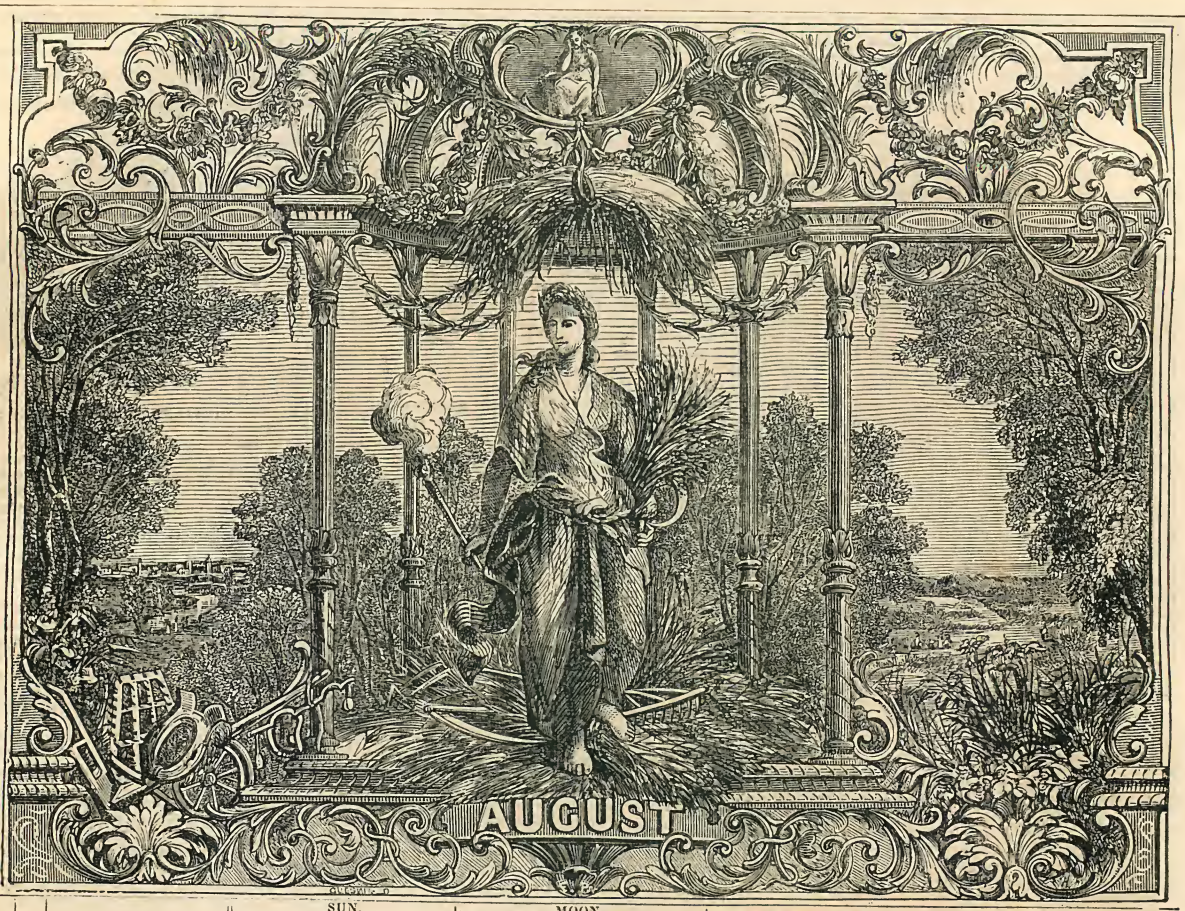


INTERIOR OF THE GALL ON THE EGLANTINE.

There is a species of gnat common in Hungary (*Simúlia columbaczénsis*), which, though so minute as to be scarcely perceptible without a powerful microscope, is yet so extremely destructive that it will kill a large horse or cow in a few hours. In some years these gnats fill the atmosphere so completely, that, as Kollar tells us, "it is impossible to breathe without swallowing a great number of them. Not unfrequently they appear in so dense a multitude as to be taken at a distance for a cloud, and in this form they are most to be feared. On the appearance of these clouds the herds instinctively leave their pastures, and fly to the villages to take refuge in their stables from these bloodthirsty insects. Horses, oxen, and swine generally suffer the most from them. When these flies attack any of the above-named animals, they select the tender soft parts, free from hair. Hence, they attach themselves mostly to the corners of the eyes, the mouth, the nostrils, and even creep into the ears and the inner nostrils, the throat and windpipe, &c., where they are sometimes found in animals killed by them, in thick layers. Men are no less exposed to the attacks of these scourges than domestic animals; but they can more readily drive them off, and by covering the face secure themselves from the most dangerous consequences. Solitary examples also are not wanting where little children have been killed by them, when the mother, to pursue her work, has left her babe lying in the grass, or suspended in its swing to the branch of a tree, and staid away too long. Every bite given by this insect to men or cattle causes a burning itching, and a very painful, hard, rapid swelling, which scarcely goes off in eight or ten days. Many of them, particularly when they are near together, cause a violent inflammatory fever, and in sensitive bodies cramps and convulsions. For a long time the appearance of this destructive gnat was a dark riddle to the inhabitants of the country. All sorts of conjectures were made about its origin. The inhabitants of the neighbourhood of Columbacz, in Servia, the native locality of these flies, assert that the caves in the limestone mountains, near the ancient Castle of Columbacz, are their real birth-places, as they have been seen to issue from the mouths of these caves in the form of a thick smoke. This opinion is universal in the Bannat, and is particularly maintained by the Wallachians, who add that the dragon killed by St. George is buried in one of these caves, and that these hurtful insects, as well as many other poisonous animals, are hatched in its jaws." Some of these gnats were brought to England in the summer of 1847, and exhibited at a meeting of the Entomological Society.

One of the most destructive insects at this season of the year is the raspberry beetle (*Derméstes*, or *Bytùrus, tomentòsus*). "Many of the raspberries," says Mr. Westwood, "may now be perceived more or less shrivelled, with the seed-vessels dried up. If one of these be opened, the central core of the fruit will be found more or less burrowed, as well as the fruit itself, the seeds of which are left bare and dry, especially at the top, the remainder not being full-sized, and generally prematurely ripe and discoloured. This is done by a whitish grub, of about a quarter of an inch long, and rather cylindric in figure; with the under side of the body and sides, and articulations of the segments, dirty white; the head and a dorsal plate on each ring brownish buff, with the sides and a central longitudinal line on each plate brown, thus giving the appearance of three dorsal lines of brown. The head is horny, and furnished with horny jaws and short feelers, as well as with the various membranous parts usually present, composing the under portions of the mouth of the larvæ of *Coleóptera*. The grub is also furnished with six short, scaly, articulated feet. It has also two short scaly horns on the upper side of the extremity of the body, the under side being furnished with a fleshy retractile tubercle, which the insect uses as a seventh foot. When full grown it descends to the earth, where it buries itself to a considerable depth, forming for itself a small oval cocoon of earth, with the inner surface quite smooth. Here it assumes the ordinary pupa state, to which all coleopterous insects are subject." The perfect insect is a small, buff, or slaty-brown, oval beetle, about one-sixth of an inch long, with knobbed antennæ, which is to be seen flying about the raspberry plants in summer, and which is sometimes also found on the hawthorn and the blackberry.

The bloody-nose beetle (*Chrysomèla tenebricòsa*) is so named from its having always, when alarmed, a clear drop or two of red fluid hanging from its mouth. This fluid it ejects, when taken, upon the hands of its capturers; and as, from the sharp pain it occasions, it frequently makes the holder start, the insect falls to the ground, and, of course, loses no time in making its escape. Other species of the same genus eject a white fluid, which is somewhat glutinous, and which enables them to adhere, when necessary, to the branches or leaves of trees. These beetles, indeed, and the ground beetles, to which they are very nearly allied, are remarkably expert climbers, and they will not only run up trees and along the branches of trailing plants, but they will occasionally walk with their backs downwards, adhering so firmly that it requires a tolerably strong pull to disengage them. Sometimes, the effect of a warm sunny day in February is astonishing upon the beetles which are hybernated, and they come out of their holes in such numbers, as to make one wonder where they can possibly have been hidden.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'Clock.	SUN. Height above horizon	SUN. Sets.	MOON. Rises. Afternoon	MOON. Souths. Morning.	MOON. Souths. Height above horizon	MOON. Sets. Afternoon	Moon's Age.	HIGH WATER at London Bridge. Morning.	HIGH WATER at London Bridge. Afternoon	Day of the Year.
			h. m.	m. s.	Deg.	h. m.	h. m.	h. m.	Deg.	h. m.		h. m.	h. m.	
1	Th	Lammas Day	4 25	6 1	56½	7 46	11 29	5 55	48	1 1	☾	7 0	7 25	213
2	F	Length of day 15h 18m	4 26	5 57	56¼	7 44	Morning.	6 45	51¾	2 14	24	7 55	8 20	214
3	S	Length of night 8h 44m	4 28	5 53	56	7 42	0 2	7 39	55¼	3 27	25	9 0	9 35	215
4	S	10TH S. aft. TRIN.	4 30	5 48	55¾	7 41	0 43	8 36	57½	4 37	26	10 10	10 45	216
5	M	[figuration	4 31	5 43	55½	7 40	1 36	9 37	58½	5 43	27	11 25	At Midnight	217
6	Tu	Pr. Alfred b. Trs-	4 33	5 37	55¼	7 38	2 35	10 39	58	6 38	28	No Tide.	0 35	218
7	W	Name of Jesus	4 35	5 30	55	7 36	3 46	11 41	56	7 23	○	1 2	1 30	219
8	Th	Day breaks 1h 36m	4 36	5 23	54¾	7 34	5 6	Afternoon	52¾	8 2	1	1 55	2 20	220
9	F	[Q. Day	4 38	5 15	54½	7 32	6 28	1 39	48½	8 35	2	2 45	3 10	221
10	S	*St. Lawrence.* Hf	4 40	5 7	54	7 31	7 49	2 33	43½	9 2	3	3 35	3 55	222
11	S	11TH S. aft. TRIN	4 41	4 58	53¾	7 29	9 7	3 25	38¾	9 28	4	4 20	4 45	223
12	M	[Lam. Day	4 42	4 49	53½	7 27	10 24	4 15	33¾	9 54	5	5 5	5 25	224
13	Tu	Qu. Adel. b. Old	4 44	4 39	53¼	7 25	11 38	5 3	29¼	10 19	6	5 50	6 10	225
14	W	Alpha Lyræ souths 8h 59m P.M.	4 45	4 28	53	7 23	Afternoon	5 51	25½	10 46	7	6 30	6 55	226
15	Th	As. of B. V. Mary	4 46	4 17	52½	7 21	1 55	6 39	22¼	11 17	8	7 20	7 45	227
16	F	Beta Lyræ souths 9h 5m P.M.	4 47	4 5	52¼	7 19	2 57	7 27	20	11 53	9	8 15	8 50	228
17	S	Duch. of Kent b.	4 49	3 53	52	7 17	3 55	8 15	18¾	Morning.	10	9 30	10 5	229
18	S	12TH S. aft. TRIN	4 51	3 40	51¾	7 15	4 48	9 4	18½	0 33	11	10 40	11 20	230
19	M	Gamma Aquilæ souths 9h 47m P.M.	4 52	3 27	51¼	7 13	5 32	9 51	19	1 26	12	11 55	No Tide.	231
20	Tu	Alpha Aquilæ souths 9h 47m P.M.	4 53	3 13	51	7 11	6 12	10 39	20½	2 12	13	0 25	0 50	232
21	W	Black-cock sh. b.	4 55	2 59	50¾	7 9	6 45	11 25	22¾	3 11	14	1 15	1 35	233
22	Th	Beta Aquilæ souths 9h 44m P.M.	4 57	2 44	50¼	7 7	7 12	Morning.	—	4 12	●	1 55	2 10	234
23	F	Alpha Cygni souths 10h 28m P.M.	4 59	2 29	50	7 5	7 37	0 10	26	5 15	16	2 30	2 45	235
24	S	*St. Bartholomew*	5 1	2 13	49¾	7 3	8 0	0 54	29½	6 20	17	3 5	3 20	236
25	S	13TH S. aft. TRIN	5 2	1 57	49¼	7 1	8 23	1 38	33½	7 26	18	3 35	3 50	237
26	M	Prince Albert b.	5 3	1 40	49	6 59	8 44	2 22	38	8 33	19	4 5	4 20	238
27	Tu	Beta Aquarii souths 11h 0m P.M.	5 5	1 24	48½	6 57	9 6	3 6	42¼	9 40	20	4 35	4 55	239
28	W	*St. Augustin*	5 7	1 6	48¼	6 55	9 33	3 52	46¾	10 50	21	5 10	5 30	240
29	Th	St. John Bap. beh	5 8	0 49	48	6 53	10 2	4 40	50¾	11 59	22	5 45	6 5	241
30	F	Alpha Aquarii souths 11h 23m P.M.	5 10	0 31	47½	6 51	10 38	5 31	54	Afternoon	☾	6 25	6 50	242
31	S	Twilight ends 8h 56m	5 12	0 13	47¼	6 49	11 22	6 25	56¾	2 21	24	7 15	7 45	243

DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 1h. 2h. 3h. After Sunset. O'Clock. 9h. 10h. 11h.

AUGUST.

The Sun is situated north of the Equator, and is moving south. On the 23rd day, at 1h. 22m. P.M., he passes from the sign Leo to Virgo (the Virgin), having been in the former sign 31 days, 6 hours, and 49 minutes. He rises and sets on the 15th, at the E.N.E and W.N.W. points of the horizon respectively. On the 1st day his distance from the Earth is 96,392,000 miles.

On August 7th there will be an eclipse of the Sun, but which will be invisible in Europe. It will be visible for the most part at places situated between 20° south latitude, and 40° north latitude, and between 130° and 300° east longitude. These portions of the Earth are principally occupied by the North Pacific Ocean, and the eclipse will be total at some parts of the ocean. It begins on the 7th at 7h. P.M. nearly, Greenwich time, at a place whose latitude is $11\frac{3}{4}$° N., and whose longitude is 164° E.; and the eclipse ends on August 7th near midnight, Greenwich time, in latitude 10° S., and longitude 300° E.

The Moon, on the 1st, near midnight, enters Taurus. She crosses the Milky Way on the 4th; enters Gemini on the 5th; Cancer on the 6th; Leo on the 8th; Virgo on the 10th; Libra on the 13th; Ophiuchus on the 15th; Sagittarius on the 17th; Capricornus on the 20th; Aquarius on the 22nd; Pisces on the 24th; Cetus on the 25th; and, till the 29th, she is alternately in Pisces, Cetus, and Aries; and enters Taurus on the 29th.

She is above the horizon when the Sun is below, during the morning hours, for a few days at the beginning of the month, and from the 14th to the 31st; and during the evening hours, from the 11th to the 25th.

She is north of the Equator at the beginning, and reaches her extreme north position on the 5th: then she moves south; is on the Equator on the 11th; at her extreme south position on the 18th; and again on the Equator on the 26th, going north.

She is near Mercury on the 8th; Mars, Jupiter, and Venus on the 10th; Saturn on the 26th; and Uranus on the 27th.

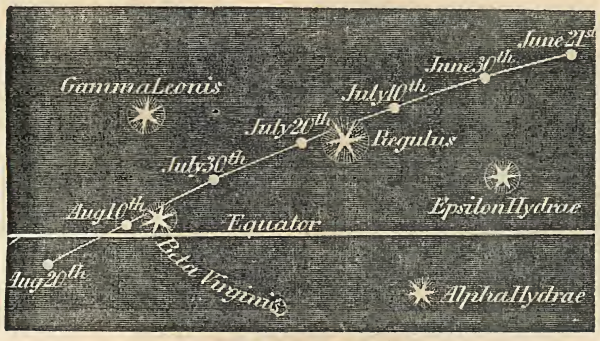
Mercury is in the constellation Cancer till August 3rd; in that of Leo from the 4th to the 23rd; and in Virgo from the 24th.

He is an evening star; and sets on the 1st, at 8h. 1m.; on the 15th, at 7h. 57m.; and on the last day, at 7h. 24m.: these times are 15, 36, and 35 minutes, respectively, after the Sun sets. Mercury sets on the 19th at the W. by N., and on the 29th at the W. point of the horizon. He moves eastward among the stars throughout the month; is near the Moon on the 8th, and Jupiter on the 28th. For his path in the heavens, see the diagram in September, showing a continuation of his motion from that exhibited in the diagram in June.

Venus is in the constellation Leo till the 3rd, and in that of Virgo from the 4th.

She is an evening star; and sets on the 1st, at 9h. 10m. P.M.; on the 15th, at 8h. 36m. P.M.; and on the last day, at 7h. 57m. P.M.; on the 13th at the W., and on the 27th at the W. by S. point of the horizon. She is moving eastward among the stars. She is near Jupiter on the 6th; Beta Virginis on the 8th; and Spica Virginis on the 31st. Her path in the heavens is shewn in the annexed diagram, and her telescopic appearance is shewn in December.

PATH OF VENUS FROM JUNE 21 TO AUGUST 20, 1850.

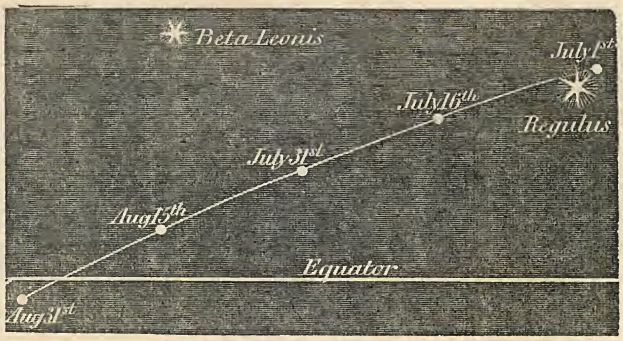


Scale, 24 degrees to one inch.

Mars is in the constellation Leo till the 9th, on which day he passes into Virgo.

He is an evening star; and sets, on the 1st., at 9h. 6m. P.M.; *on the 15th*, at 8h. 26m. P.M.; and, on the last day, at 7h. 37m. P.M. He is moving eastward among the stars; is near the Moon on the 10th, Jupiter on the 14th, and Beta Virginis on the 15th. His altitude above the horizon when he souths on the 1st is 44°$\frac{3}{4}$, decreasing to 37° on the last day.

PATH OF MARS FROM JULY 1 TO AUGUST 31, 1850.

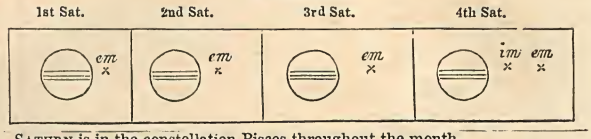


Scale, 12 degrees to one inch.

Jupiter is in the constellation Virgo throughout the month.

He sets, on the 1st, at 9h. 22m. P.M.; and, on the last day, at 7h. 35m. P.M.; near the W. by N. point of the horizon at the beginning of the month, and W. at the end. His altitude in southing is 42°$\frac{3}{4}$ on the 1st, and is 40°$\frac{1}{2}$ on the last day. He moves slowly eastward among the stars; is near Venus on the 6th, the Moon on the 10th, Mars on the 14th, and Beta Virginis on the 17th. His path in the heavens is shewn in the diagram in May.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Pisces throughout the month.

He is visible during the greater part of the night; and rises near the E. by N.; on the 1st, at 10h. 6m. P.M.; on the 15th, at 9h. 10m. P.M.; and, on the last day, at 8h. 8m. P.M. He souths at an altitude of 44° nearly; is almost stationary among the stars throughout the month; and is near the Moon on the 26th. See the diagram in next month shewing his motion in the heavens.

Uranus is in the constellation Aries throughout the month.

He rises, on the 1st, at 10h. 11m. P.M.; and on the 31st at 8h. 13m. P.M., midway between the E. by N. and E.N.E. points of the horizon. He souths, on the 15th, at 4h. 2m. A.M., at an altitude of 49°$\frac{1}{4}$. He is almost stationary among the stars, and is near the Moon on the 27th.

Neptune rises, on the 1st, at 8h. 44m. P.M.; on the 15th, at 7h. 48m. P.M.; and, on the 31st, at 6h. 45m. P.M., midway between the E. by S. and the E.S.E. points of the horizon.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

(*Continued from page* 29.)

declination and his greatest meridian altitude. From this time, the north declination gradually decreases till about the 24th of September, when he is again on the Equator: he continues to move in the same direction till about the 22nd of December, when his greatest south declination is attained; after which his south declination gradually decreases till about the 21st of March. At the times of the vernal equinox on the 21st of March, and the autumnal equinox about the 24th of

(*Continued on page* 37.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Morning.	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 12	2 34	2 31	2 53	4 44	1 57
6	0 33	2 35	2 23	2 36	4 24	1 37
11	0 50	2 36	2 15	2 20	4 4	1 17
16	1 4	2 37	2 7	2 4	3 44	0 57
21	1 14	2 38	1 59	1 48	3 24	0 37
26	1 22	2 39	1 51	1 32	3 4	0 17
31	1 27	2 40	1 43	1 16	2 43	Aftern.

JUPITER'S SATELLITES.

Are not visible, Jupiter being too near to the Sun.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitudes.	Times of disappearance & re-appearance of the Star. D. H. M.	At which limb of the Moon.	Between what Latitudes visible.
Gamma Tauri	3	3 0 39 A.M.	Bright	16° N. &
		3 1 25 A.M.	Dark	90° N.
Aldebaran	1	3 8 34 A.M.	Bright	8° N. &
		3 9 44 A.M.	Dark	81° N.
Gamma Libræ	4	14 8 30 P.M.	Dark	18° N. &
		14 9 41 P.M.	Bright	76° N.
Xi 1 Sagittarii	6	18 6 44 P.M.	Dark	15° N. &
		18 8 4 P.M.	Bright	69° N.
42 Aquarii	6	22 8 36 P.M.	Dark	6° N. &
		22 9 19 P.M.	Bright	72° N.

TIMES OF CHANGES OF THE MOON, And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

	D.	H.	M.	
Last Quart.	1	5	17	A.M.
New Moon ..	7	9	34	P.M.
First Quart.	14	5	46	P.M.
Full Moon	22	9	12	P.M.
Last Quart.	30	2	18	P.M.
Perigee ..	7	1		P.M.
Apogee ..	20	3		P.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination North.	Venus. Right Ascension	Venus. Declination North.	Mars. Right Ascension	Mars. Declination North.	Jupiter. Right Ascension	Jupiter. Declination North.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
	h. m	° ′	h. m	° ′	h. m	° ′	h. m	° ′	h. m	° ′	h. m	° ′	h. m	° ′
1	8h. 51m	19° 27′	11h. 13m	6° 13′	11h. 10m	6° 14′	11h. 32m	4° 17′	1h. 21m	5° 49′	1h. 54m	11°5′	22h. 34m	9° 55′
6	9 32	16 29	11 34	3 42	11 22	4 58	11 35	3 54	1 21	5 48	1 54	11 5	22 34	9 57
11	10 9	13 4	11 55	1 9	11 33	3 41	11 39	3 31	1 21	5 45	1 54	11 5	22 33	9 59
16	10 42	9 26	12 15	South.	11 45	2 23	11 41	3 7	1 21	5 42	1 54	11 4	22 33	10 3
21	11 12	5 45	12 36	3 59	11 57	1 4	11 46	2 43	1 20	5 37	1 53	11 3	22 32	10 6
26	11 39	2 7	12 56	6 31	12 8	South.	11 50	2 18	1 20	5 32	1 53	11 1	22 31	10 9

AUGUST.—OYSTER DREDGING IN WHITSTABLE BAY.

NOTES ON NATURAL HISTORY.—AUGUST.

In August very few birds are heard to sing. Even the robin and the wren are generally quiet from the middle of July till the middle of August, though the robin generally begins again to sing towards the end of the latter month. Occasionally a number of young birds, such as linnets, greenfinches, buntings, and other small birds, are seen flying together in large flocks like a swarm of bees, and seeming as though they were driven off by the old birds, though they are much too numerous to be the inhabitants of one nest; and when they fly, it is in a determined manner, "wending their way steadily in a direct line, as if under the influence of some common impulse." These flittings, also, do not appear to have anything to do with ordinary migrations, as they occur in species which do not migrate; and, in fact, it does not appear that there is any reason for their removal, unless it be that those particular kinds of birds have become, after the hatching of the young ones, too numerous for their original neighbourhood, from a deficiency of food, or some other cause; and hence they are driven forth to seek a new settlement.

Mr. Knapp says he has observed "a flock of finches and yellow-hammers basking in a hedge, and a hawk, after due consideration, apparently single out an individual. Upon its moving for its prey, some wary bird has given the alarm, and most of the little troop scuttle immediately into the hedge; but the hawk holds on its course, and darts upon a selected object. If baffled, it seldom succeeds upon another; and, so fixed are its eyes upon this one individual, that, as if unobservant of its own danger, it snatches up its morsel at our very sides. A pigeon on the roof of a dove-cot seems selected from its fellows—the hawk rarely snatching at more than one terror-stricken bird. The larger species of hawks appear to employ no powers excepting those of wing, but pursue and capture by celerity and strength."

It has often been observed that we are surrounded by wonders which we do not notice, because they are of daily occurrence, but which excite the greatest surprise when they are pointed out to us. The truth of this observation is forcibly exemplified as regards fish. We see them every day exposed for sale on stalls, and we eat them frequently at our tables, without once considering by what a curious and delicate organisation these creatures are enabled to see and breathe in an element that carries death to us and to quadrupeds. The sight of fishes appears to be remarkably strong, as it is by sight chiefly that they discover their prey. Hence, a fish is easily deceived by an artificial fly, or the imitation of a frog or other small aquatic or amphibious animal; which, if it were guided by the smell, or any other sense than the sight, could not happen. The mode in which fishes breathe is, however, the most curious. They have no lungs; but, instead of them, they have gills, carefully covered with a lid and a flap, both of which the fish can open or keep closed at pleasure. The gills are composed of arches, bordered by a kind of fringe, which, when examined through a microscope, appears covered with a velvet-like membrane, "over which myriads of wonderfully minute blood-vessels are spread, like a delicate net-work. There are commonly four of these fringed arches: they are moveable, and allow the currents of water, driven down by the action of the mouth, to flow freely through them, so as to lave every fibril." It is absolutely necessary that this should be the case, since the gills lose their power of acting as soon as they become dry; and hence a fish cannot live long after it is taken out of the water. As there is danger, however, of the food taken by the fish being carried through the gills by the stream of water constantly flowing through them, the minor curve of the arch formed by the gills is studded with spines, which prevent anything but air or water passing through them.

FLOWERING FERN.

In the vegetable world, some plants are in flower at this season that are not met with at any other, and one of the most curious of these is the flowering fern (*Osmúnda regàlis*), a plant, the very name of which seems a contradiction, as it is well known that ferns have no flowers, in the usual acceptation of the word, and that they bear their seeds on the back of their leaves. The flowering fern resembles the other plants belonging to the family in not having any proper flowers, but it has its seed-vessels on only some of its fronds, or, rather, on what should have been some of its fronds; as the seed-vessels grow clustered together, without any of the cellular tissue belonging to the leaves being produced. Thus, the seed-vessels of the flowering fern, instead of being found, as in other ferns, on the back of the leaves, look as though the leaves had withered away from them. In the early part of the summer, these seed-vessels being of a pale green, are scarcely perceptible; but about autumn they take a rich brown colour and become very ornamental. These ferns are tolerably abundant, particularly in the north of England and in Scotland, where, in marshy places, they grow to a considerable size, sometimes having been known to be upwards of eleven feet high. The botanic name of the plant is said to allude to some Saxon King named Osmund, who adopted the flowering fern as his badge, in the same way as the broom, the common heath, and many other British plants, have been adopted as banners by several Highland clans. The underground or root-like stem of this plant is tonic, and is used in rustic medicine. The moon-wort, or grape fern (*Botrýchium Lunária*), is very nearly allied to the *Osminda*, as it produces naked seed-vessels; but it is much less ornamental. It takes its name of moon-wort from its leaflets being somewhat crescent-shaped. The adder's tongue (*Ophioglóssum*) is another fern which does not produce its seed-vessels on the back of the leaves, but in a close clustered spike, bearing considerable resemblance to a tongue. The adder's tongue is found in moist meadows and pastures in warm situations.

The sundew, or red rot, is the name of a singular genus of perennial British plants, which are found on heaths and commons where the soil is boggy. The leaves, which all spring from the roots, are covered with glandular hairs, from the extremities of which exudes a transparent but glutinous liquid, resembling drops of dew. The flowers are nearly white, and rather pretty. There are three species: the commonest kind has round leaves, but the long-leaved species (*Drósera longifólia*) is the most ornamental. Ants and small flies are sometimes found adhering to the leaves, or entangled in the hairs, which, it is said, fold over them, and prevent the possibility of their escape; but it appears more probable that the insects are held fast by the glutinous liquid exuded from the hairs. "All the species of *Drósera* are acrid, and their juice is employed to destroy warts and corns." They are said to occasion the rot in sheep, but that probably arises from the unwholesome nature of the boggy land on which the plants grow.

LONG-LEAVED SUN-DEW.

The ants generally seen are little black creatures with long legs, large heads, and very slender bodies. But these are only the working part of the community; and many people are probably not aware that, in the month of August, and sometimes later, "the habitations of the various species of ants may be seen to swarm with winged insects, which are the males and females, preparing to quit for ever the scene of their nativity and education. Every thing is in motion; and the silver wings, contrasted with the jet bodies which compose the animated mass, add a degree of splendour to the interesting scene. The bustle increases, till at length the males rise, as it were by a general impulse, into the air, and the females accompany them. The whole swarm alternately rises and falls with a slow movement to the height of about ten feet, the males flying obliquely, with a rapid zig-zag motion, and the females, though they follow the general movement of the column, appearing suspended in the air, like balloons, seemingly with no individual motion, and having their heads turned towards the wind." "Sometimes the swarms of a whole district," continue Messrs. Kirby and Spence, "unite their infinite myriads, and, rising with incredible velocity, in distinct columns, they soar above the clouds. Each column looks like a kind of slender net-work, and has a tremulous undulating motion, which has been observed to be produced by the regular alternate rising and falling just alluded to. The noise emitted by myriads and myriads of these creatures does not exceed the hum of a single wasp. The slightest zephyr disperses them; and if, in their progress, they chance to be over your head, if you walk slowly on, they will accompany you, and regulate their motions by yours." All the male, and a great number of the female, ants become the prey of birds or fish, or are destroyed in various ways; but a few females remain, some of which become the founders of new colonies, while others return to their original nest, when it is said that they are seized forcibly by some of the working ants, who tear off their wings, and keep them prisoners till they are ready to lay their eggs. During the time that the female ants are in this state of durance, the working ants, though hanging pertinaciously to each leg, to prevent their going out, at the same time attend upon them with the greatest care, feeding them regularly, and conducting them where the temperature is suitable for them, but never quitting them for a single moment. As soon as the female begins to lay her eggs, the working ants which are in attendance on her carry them off, and deposit them in proper places for them to be hatched. Each female lays four or five thousand eggs in the course of a year, so that when a single female founds a colony, she is very soon enabled to people it. When a female has founded a colony, the working ants begin to pay a homage to her very similar to that which bees render to their queen; and, as Messrs. Kirby and Spence observe, "all press round her, offer her food, conduct her by her mandibles through the difficult or steep passages of the formicary; nay, they sometimes even carry her about their city: she is then suspended upon their jaws, the ends of which are crossed; and, being coiled up like the tongue of a butterfly, she is packed so close as to incommode the carrier but little. When he sets her down, others surround and caress her, one after another tapping her on the head with their antennæ." "In whatever apartment," says Gould, "a queen condescends to be present, she commands obedience and respect. An universal gladness spreads itself through the whole cell, which is expressed by particular acts of joy and exultation. They have a particular way of skipping, leaping, and standing upon their hind legs, and prancing with the others." The ants appear to make use of these frolics to show their joy at the presence of their queen. It is said, that when a queen begins to form a colony, the first thing she does is to strip herself of her wings; so that when the female ants belonging to a colony already formed are stripped of their wings by the workers, it is not an act of cruelty on their part, but rather a delicate attention, as they spare the queen the trouble of taking off her wings herself.

COMMON ANT.

WINGED ANT.

M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. After 12 o'clock.	SUN. Height above Horizon	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Height above Horizon	MOON. Sets. Afternoon	DURATION OF MOONLIGHT. Before Sunrise O'Clock. 2h. 3h. 4h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset O'Clock. 8h. 9h. 10h	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	S	14TH S. aft. TRIN.	5 13	0 6	46½	6 46	Morning.	7 22	58¼	3 28		25		8 20	9 5	244
2	M	London bt., 1666.	5 15	Before 12 o'Clock.	46½	6 44	0 15	8 22	58½	4 26		26		9 45	10 25	245
3	Tu	Partridge and Bustard Shooting begins on the 1st.	5 16	0 44	46	6 42	1 22	9 23	57¼	5 16		27		11 10	11 45	246
4	W	Alpha Cygni souths 9h 41m P.M.	5 18	1 3	45¾	6 40	2 37	10 23	54½	5 57		28		No Tide.	0 20	247
5	Th	*Old. St. Bartholo.*	5 20	1 23	45¼	6 37	3 56	11 21	50¾	6 31		29		0 50	1 20	248
6	F	Alpha Aquarii souths 10h 55m P.M.	5 21	1 43	45	6 35	5 18	Afternoon	46	7 1		○		1 45	2 5	249
7	S	*Eunurchus*	5 23	2 2	44½	6 32	6 40	1 11	41	7 28		1		2 30	2 55	250
8	S	15TH S. aft. TRIN.	5 25	2 23	44¼	6 29	8 0	2 3	36	7 55		2		3 15	3 40	251
9	M	[Nativity of B. V. Mary	5 26	2 43	43¾	6 27	9 15	2 53	31	8 19		3		3 55	4 20	252
10	Tu	Length of day 12h 58m	5 27	3 3	43½	6 25	10 30	3 43	26¾	8 45		4		4 40	5 0	253
11	W	Length of night 11h 7m	5 29	3 24	43	6 22	11 41	4 32	23½	9 16		5		5 15	5 35	254
12	Th	Day breaks 3h 32m	5 31	3 45	42¾	6 20	Afternoon	5 21	20¾	9 50		6		5 55	6 20	255
13	F	Twilight ends 5h 20m	5 32	4 6	42¼	6 18	1 48	6 10	19	10 29		☽		6 40	7 5	256
14	S	*Holy Cross*	5 33	4 27	42	6 16	2 43	6 59	18¼	11 14		8		7 30	8 0	257
15	S	16TH S. aft. TRIN.	5 35	4 48	41½	6 14	3 31	7 47	18½	Morning		9		8 40	9 20	258
16	M	Buck-Hunt. ends	5 36	5 9	41¼	6 12	4 12	8 35	19¾	0 6		10		10 0	10 45	259
17	Tu	*Lambert*	5 38	5 30	40¾	6 10	4 47	9 21	22	1 2		11		11 20	At Midnight	260
18	W	Ember Week. K	5 40	5 51	40½	6 7	5 15	10 7	24¾	2 2		12		No Tide	0 25	261
19	Th	[George I. & II. land	5 42	6 13	40	6 5	5 41	10 51	27¾	3 5		13		0 50	1 10	262
20	F	Fomalhaut souths 10h 51m P.M.	5 43	6 34	39¾	6 2	6 5	11 36	32¼	4 10		14		1 30	1 45	263
21	S	*St. Matthew*	5 45	6 55	39¼	6 0	6 27	Morning.	—	5 16		●		2 5	2 20	264
22	S	17TH S. aft. TRIN.	5 46	7 16	38¾	5 58	6 48	0 20	36¼	6 24		16		2 35	2 50	265
23	M	Autumn begins	5 48	7 37	38½	5 56	7 11	1 4	41	7 31		17		3 5	3 20	266
24	Tu	Alpha Pegasi souths 10h 43m P.M.	5 49	7 57	38	5 54	7 36	1 50	45½	8 42		18		3 40	3 55	267
25	W	Alpha Andromedæ souths 11h 42m P.M.	5 51	8 18	37¾	5 52	8 4	2 38	49¾	9 52		19		4 10	4 25	268
26	Th	*St. Cyprian*	5 53	8 38	37¼	5 50	8 37	3 28	53¼	11 4		20		4 45	5 5	269
27	F	Length of day 11h 52m	5 55	8 59	37	5 47	9 18	4 20	56¼	Afternoon		21		5 20	5 40	270
28	S	[*Michael. Day.*	5 56	9 19	36½	5 45	10 8	5 16	58¼	1 20		☾		6 0	6 25	271
29	S	18TH S. aft. TRIN.	5 58	9 38	36¼	5 43	11 6	6 13	58¾	2 20		23		6 55	7 25	272
30	M	*St. Jerome*	5 59	9 58	35¾	5 41	Morning.	7 12	58	3 10		24		8 0	8 45	273

SEPTEMBER.

The Sun is situated north of the Equator till the 22nd, and he crosses the Equator, going south, on the 23rd. He crosses from the sign Virgo to Libra on the 23rd day, at 10h. A.M., having been in the former sign 30 days, 20 hours, and 38 minutes. He rises and sets on the 5th at the E. by N. and W. by N., and on the 23rd at the E. and W. points of the horizon respectively. On the 1st day his distance from the Earth is 95,816,000 miles.

The Moon is in Gemini on the 1st; and enters Cancer on the 3rd; Leo on the 4th; Virgo on the 6th; Libra on the 10th; Ophiuchus on the 12th; Sagittarius on the 14th; Capricornus on the 16th; Aquarius on the 18th; Pisces on the 20th; Cetus on the 21st; near Pisces and Cetus on the 24th; near Aries and Cetus on the 25th. She is crossing the Milky Way on the 28th. She enters Gemini on the 28th, and Cancer on the 30th.

She is above the horizon when the Sun is below, during the morning hours of the first three days and last eleven days, and during the evening hours, from the 9th to the 24th.

She is at her extreme north position on the 1st; is on the Equator on the 8th; and her extreme south position on the 15th: she then begins to move northward; is on the Equator on the 22nd; and reaches her extreme north position a second time on the 29th.

She is near Mercury, Mars, and Jupiter on the 7th; Venus on the 9th; Saturn and Uranus on the 23rd.

Mercury is in the constellation Virgo throughout the month.

He is an evening star; and sets on the 1st at 7h. 21m.; on the 15th, at 6h. 41m.; and on the last day, at 5h. 44m. The Sun sets on these days 35 minutes, 27 minutes, and 3 minutes before the planet. On the 9th he sets at the W. by S.; and towards the end of the month, near W.S.W. He moves eastward among the stars till the 24th; is stationary among them on the 25th; and moves westward from the 26th. He is near the Moon on the 7th; Mars on the 8th, and again on the 26th; is near Spica Virginis on the 20th; and is at his greatest eastern elongation on the 12th. His path in the heavens is shewn in the diagram below.

Venus is in the constellation Virgo till the 11th; and in that of Libra from the 12th.

She is an evening star; she sets, on the 1st, at 7h. 55m. P.M.; on the 15th, at 7h. 22m. P.M.; and on the last day, at 6h. 50m. P.M.; on the 11th at the W.S.W., and on the 28th at the S.W. by W. points of the horizon. She is moving eastward among the stars, and is near the Moon on the 9th. For her path in the heavens see the diagram in November; and for her telescopic appearance see the engraving in December.

Mars is in the constellation Virgo throughout the month.

He is an early evening star, and sets, on the 1st, at 7h. 34m. P.M.; on the 15th, at 6h. 54m. P.M.; and on the last day, at 6h. 12m. P.M.; near the W. at the beginning of the month, and at the W. by S. point of the horizon on the 21st: he is moving eastward among the stars; he is near the Moon and Mercury on the 7th, and again near Mercury on the 26th. His altitude above the horizon when he souths on the 1st is 36¾°, decreasing to 29° nearly on the last day. For his path in the heavens during this month, see the diagram in November.

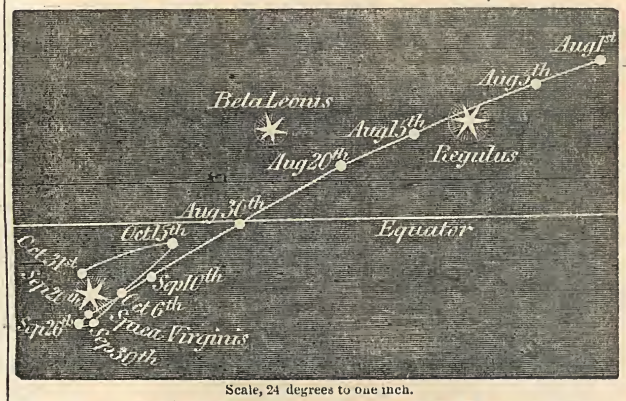
Jupiter is in the constellation Virgo throughout the month.

He sets, on the 1st, at 7h. 32m. P.M.; and on the last day, at 5h. 45m. P.M.; near the W. point of the horizon. His altitude at the time of southing on the 1st is 40°¾; and on the last day, is 37°¾. His motion is slowly eastward among the stars; and he is near the Moon on the 7th. For his path in the heavens see the diagram in May.

Saturn is in the constellation Pisces throughout the month.

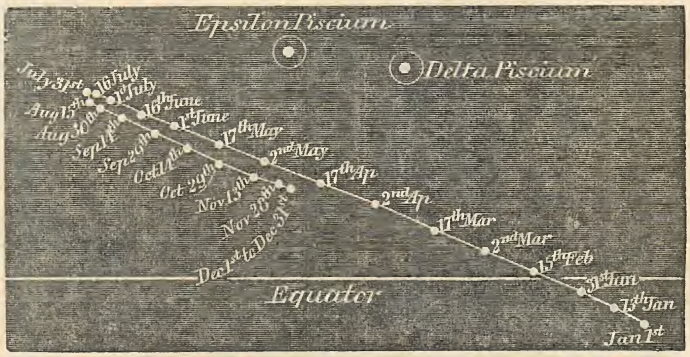
He is visible throughout the night; and rises on every day near the E. by N.

PATH OF MERCURY FROM AUGUST 1 TO OCTOBER 31, 1850.



Scale, 24 degrees to one inch.

PATH OF SATURN DURING THE YEAR 1850.



Scale, 6 degrees to one inch.

Uranus is in the constellation Aries throughout the month.

He rise, on the 1st, at 8h. 9m. P.M.; and on the 31st, at 6h. 13m. P.M. He souths on the 15th, at 2h. 15m. A.M., at an altitude of 49°½ nearly. He moves westward among the stars, and is near the Moon on the 23rd.

Neptune rises, on the 1st, at 6h. 41m. P.M.; on the 15th, at 5h. 45m. P.M.; and on the last day, at 4h. 46m. P.M.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

(*Continued from page* 33.)

September, the lengths of both days and nights are equal all over the earth.

The circle which the sun describes is called the Ecliptic—so named from the circumstance of the Moon, at the time of her eclipse, occupying that part of the heavens which is passed over by the Sun; in fact, as was frequently stated last year, no eclipse of either the Sun or Moon can take place unless the Sun, the Moon, and the Earth are in, or nearly in, the same straight line.

The Ecliptic is, and has been from time immemorial, divided into twelve equal parts, called Signs—each of which, therefore, contains one-twelfth part of the whole circle, or thirty degrees. The names and symbols of these signs are inserted on page 3. The space extending eight degrees on either side of the Ecliptic is called the Zodiac; and within this space the greater part of the celestial phenomena connected with the planetary system takes place.

The motion of the Sun in his orbit is not uniform. This is evident from the fact of his remaining several days longer in the northern than in the southern signs. On page 3 will be seen the length of the seasons, from which it appears that at present Spring is shorter than Summer, and the Autumn longer than Winter; and that the interval of time between the vernal and autumnal

(*Continued on page* 41.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Afternoon	Mars. Afternoon	Jupiter. Afternoon	Saturn. Morning.	Neptune. Afternoon
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	1 28	2 40	1 41	1 13	2 39	11 53
6	1 31	2 41	1 33	0 57	2 19	11 33
11	1 31	2 42	1 26	0 42	1 58	11 12
16	1 27	2 43	1 18	0 26	1 37	10 52
21	1 19	2 44	1 11	0 10	1 16	10 32
26	1 3	2 45	1 3	Morn.	0 55	10 12
30	0 43	2 46	0 58	11 42	0 39	9 56

JUPITER'S SATELLITES.

Eclipses of

Are not visible, Jupiter being too near to the Sun.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
29 Ophiuchi	6	12 9 7 P.M.	Dark	4° N. &
		12 9 45 P.M.	Bright	70° N.
Omicron Capricorni	6	16 11 31 P.M.	Dark	2° N. &
		17 0 34 A.M.	Bright	66° N.
Iota Aquarii	4	18 10 54 P.M.	Dark	30° N. &
		18 11 40 P.M.	Bright	75° N.
70 Aquarii	6	19 7 20 P.M.	Dark	9° N. &
		19 8 16 P.M.	Bright	79° N.
Aldebaran	1	At the time of Immersion below the horizon. 26 9 8 P.M.	Dark	22° N. & 90° N.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

New Moon ..	6D.	5H.	28M.	A.M.
First Quart.	13	8	21	A.M.
Full Moon ..	21	0	40	P.M.
Last Quart.	28	9	53	P.M.
Perigee ..	4	10		P.M.
Apogee ..	17	1		A.M.

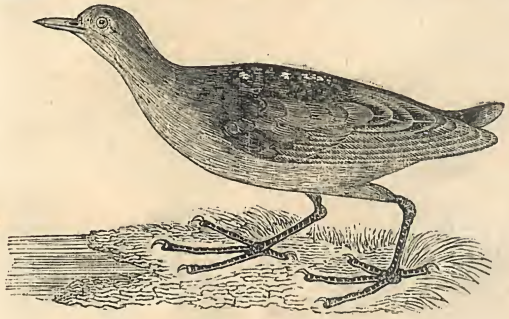
RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	MERCURY. Right Ascension	MERCURY. Declination South.	VENUS. Right Ascension	VENUS. Declination South.	MARS. Right Ascension	MARS. Declination South.	JUPITER. Right Ascension	JUPITER. Declination North.	SATURN. Right Ascension	SATURN. Declination North.	URANUS. Right Ascension	URANUS. Declination North.	NEPTUNE. Right Ascension	NEPTUNE. Declination South.
1	12h. 9m	2° 2′	13h. 21m	9° 30′	12h. 22m	1° 51′	11h. 54m	1° 48′	1h. 19m	5° 25′	1h. 53m	10° 58′	22h. 31m	10° 12′
6	12 31	5 14	13 41	11 54	12 34	3 11	11 58	1 23	1 18	5 18	1 52	10 56	22 31	10 17
11	12 51	8 5	14 2	14 12	12 46	4 30	12 2	0 58	1 17	5 11	1 52	10 53	22 30	10 20
16	13 7	10 27	14 23	16 23	12 58	5 50	12 6	0 32	1 16	5 3	1 51	10 50	22 30	10 23
21	13 19	12 7	14 44	18 26	13 11	7 9	12 10	0 6	1 14	4 55	1 51	10 47	22 29	10 25
26	13 23	12 45	15 4	20 49	13 23	8 27	12 14	South.	1 13	4 46	1 50	10 43	22 29	10 27

SEPTEMBER.—LOBSTER FISHING OFF FOLKESTONE.

NOTES ON NATURAL HISTORY.—SEPTEMBER.

SEPTEMBER is the favourite month of sportsmen; and in the first week or two, in addition to the ordinary number of partridges, many corn-crakes are killed, as they are generally very abundant in the fields, particularly where seed clover has been sown with barley. Corn-crakes, Mr. Yarrell observes, are excellent game for young sportsmen, as they fly very slowly with their legs hanging down, and seldom go farther than to the nearest hedge; while they are so highly prized as food, that it was formerly said two landrails are a present for a Queen. The corn-crake or landrail will put on the appearance of death when exposed to danger from which it cannot escape; and Mr. Jesse relates the following incident in proof of this assertion:—"A gentleman had a corn-crake brought to him by his dog, to all appearance quite dead. As it lay on the ground, he turned it over with his foot, and felt convinced that it was dead. Standing by, however, in silence, he suddenly saw it open an eye. He then took it up; its head fell; its legs hung loose, and it appeared again quite dead. He then put it in his pocket, and before long he felt it all alive, and struggling to escape. He then took it out; it was as lifeless as before. Having laid it again upon the ground, and retired to some distance, the bird in about five minutes warily raised its head, looked round, and decamped at full speed." There are two other kinds of corn-crake besides the common species: the one is called the spotted corn-crake, and is very prettily marked with white spots on the wings; and the other, which is called the little crake, is of an olive-brown colour, and much smaller than the other kinds.



LITTLE CRAKE.

There are but few plants in flower at this season; and though the woods are gay, from the autumnal tints taken by the leaves of some of the trees, many leaves have fallen, and the mornings and evenings have become cold and damp. Among the few flowers left may be seen the colchicum, which resembles the crocus in its form, but which is of a much paler lilac, and which has long, slender, succulent, white stems, without any appearance of leaves (which, indeed, do not show themselves above ground till the following spring, when they appear, together with their fertilised seed-vessels—which, by a wise provision of nature, have remained buried in the earth during the winter). This plant is employed by medical men, and has an extraordinary effect in lulling the pain of gout and rheumatism; but it is a very dangerous medicine, and an over-dose has frequently proved fatal.

COMMON NAVEL-WORT.

In moist, warm places, a curious plant is found in flower at this season, called the Common Navel-wort (*Cotyledon Umbilicus*). It generally grows on walls or cottage roofs, or moist rocks; and its principal ornament consists in its singularly-shaped leaves, which are drawn down in the centre, so as to form a kind of cup, or wine-glass, the stalk of which is formed by the foot-stalk which proceeds from the centre of the under side of the leaf. The whole plant is very succulent, including the flowers, which are greenish in the common kind. In the Greater Navel-wort, on the contrary, the flowers are the most ornamental part, as they are of a bright yellow, and they form a large erect spike; while the leaves are not remarkable for their beauty. In some parts of the country this plant is called Penny-wort, from the shape of the leaves, which are sometimes round and flat, like a penny.

In September flies begin to be very troublesome; and, though they do not sting like gnats or mosquitos, they are, perhaps, still more disagreeable from the incessant buzzing they keep up around us, and the irritation they occasion by settling on the hands and face. The immense numbers of these troublesome insects surpass all belief, and it is said that in some places they have been known to be fifty to the square inch. "It is a remarkable, though as yet unexplained fact," observes Mr. Spence, in the sixth edition of the *Introduction to Entomology*, "that if nets of thread or string, with meshes a full inch square, be stretched over the open windows of a room in summer or autumn, when flies are the greatest nuisance, not a single one will venture to enter from without; so that by this simple plan a house may be kept free from these pests, while the adjoining ones, which have not had nets applied to their windows, will swarm with them. In order, however, that the protection should be efficient, it is necessary that the rooms to which it is applied should have the light enter by *one side* only; for, in those which have a thorough light, the flies pass through the meshes without scruple." "It is a singular fact," Mr. Spence observes, in another place, "that Herodotus, above two thousand years ago, stated that the Egyptian fishermen protected themselves from the attacks of mosquitos by spreading their fishing-nets over their beds: a fact which has greatly puzzled all his commentators, who, not conceiving the possibility of mosquitos being kept off by fishing-nets, which must necessarily have wide meshes, have supposed the father of history to have alluded to some protection of fine linen, similar to the gauze nets now used against these insects. But in this, as in so many other instances, the supposed error is not that of Herodotus, but of his commentators, who, ignorant of the fact above related as to flies being excluded by wide-meshed nets, could not conceive it to be the case with mosquitos." As house-flies generally lay their eggs in stable manure, Mr. Spence suggests that the number of flies might be greatly lessened in large towns if the stable dung were kept in pits closed by trap-doors. However, if this were the case, it would not be completely efficacious, as it is known that flies will lay their eggs in almost any kind of filth; and their maggots have been found in sinks and other similar places. It was formerly supposed, from the experiments of Sir Everard Home, that flies were enabled to walk against glass, and with the back downwards in various situations, by the formation of a vacuum under the soles of their feet, if they may be so termed, as it was observed that the margins of the feet were closely applied to the glass, while the central part was drawn up. It has, however, now been discovered that this hypothesis was not correct, as Mr. Blackwall (a gentleman residing in Manchester, and an acute observer of nature) noticed that flies remained attached to the sides of an exhausted glass receiver of an air-pump, even after they had entirely lost the power of locomotion, and an evident distension of the body had been occasioned by the exhaustion of the air. To detach them from these stations, Mr. Westwood adds, the employment of a small degree of force was found requisite. "In prosecuting this subject, clean phials of transparent glass, containing spiders and various insects in the larva and imago (perfect) states, capable of walking on their upright sides, were breathed into, till the aqueous vapour expelled from the lungs was copiously condensed on their inner surface. The result was remarkable; the moisture totally prevented those animals from obtaining any effectual hold on the glass, and the event was equally decisive if a small quantity of oil was substituted for the aqueous vapour." In fact, it was found that powder, or any substance on the inside of the phials, prevented the flies from climbing, and the idea naturally suggested itself that some glutinous substance was emitted by the feet of the flies which enabled them to adhere to the glass. The next point to be determined, therefore, was, whether spiders and insects in the larva and perfect states were found to leave any visible track behind them when they crawled over glass; and, by the aid of powerful magnifying-glasses, it was found that traces were left of an exceedingly minute quantity of glutinous matter, which appeared to have been emitted by the feet of these creatures; and subsequent experiments proved that the hair-like appendages which form the brushes of spiders and flies are all tubular. It has often been observed that flies that have been half drowned, if taken out of the milk or water into which they have fallen, take a great deal of time in cleaning their feet before they can walk; and this, no doubt, is to clear out the brushes of their feet, and to bring them into a proper state for emitting the glutinous fluid.

DRONE-FLY.

The drone-fly (*Eristàlis tènax*) bears so much resemblance to a bee that it is difficult at first sight to distinguish it from one; but on examining it carefully, it will be found that it has only two wings, whereas all kinds of bees have four. "The eggs of this fly," a writer in the *Gardeners' Chronicle* tells us, "are dropped in stagnant water while the female is on the wing." The larvæ are of a most extraordinary shape, being thick at one end, and having a long tail like the stalk of a plant at the other. "The underside exhibits an infinity of vessels, with a large mass or two under the thorax, like a bundle of salmon-coloured eggs. This insect has also numerous feet, surrounded by little hooks, distinctly projecting from the body, which assist it in walking. When the larva is full-fed, it crawls out of the water, and secretes itself amongst stones, in palings, or crevices of woodwork, &c.: having fixed itself, it gradually contracts as the skin dries and hardens, until it assumes an oval shape; it is then of a dirty ochreous brown colour, the anterior extremity is a little depressed, having two horns above, covered with glands on the upper surface for breathing, and beneath them are two similar, but very minute, horns; on the underside are seven pairs of spots formed of black horny points, and a slight indentation shows the position of the mouth; the tail, although useless in this stage, does not fall off." About the first week in September, "by dilating itself, the depressed portion of the pupa, to which the four horns are attached, is forced off, and the fly comes forth of a pale colour, with its wings shrivelled;" but, in a short time, the wings increase to their proper size, and the atmosphere hardens and colours the skin.

The ground beetles are occasionally covered with very small parasitical insects, which appear to annoy them exceedingly, as they run about shaking themselves as though they were using every possible effort to get rid of their tormentors; and on one occasion a ground beetle was observed to run through the loose particles of a heap of lime rubbish, squeezing itself through with considerable difficulty, but emerging on the opposite side quite clear of its parasitical insects, which had been all brushed off by the loose particles of rubbish through which the beetle had forced itself.

M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'Clock.	SUN. Souths. Height above horizon.	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Souths. Height above horizon.	MOON. Sets. Afternoon	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 4h. 5h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 7h. 8h. 10h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	Tu	*Remigius.* Phst.	6 1	10 17	35¼	5 40	0 16	8 10	56	3 53		25		9 30	10 15	274
2	W	[shooting begins.	6 3	10 36	35	5 38	1 32	9 7	52¾	4 28		26		11 0	11 40	275
3	Th	*Old St. Matthias*	6 5	10 54	34½	5 35	2 52	10 3	48½	4 59		27		No Tide.	0 10	276
4	F	Gamma Aquilæ souths 6h. 47m. P.M.	6 7	11 13	34¼	5 32	4 13	10 57	43½	5 21		28		0 40	1 0	277
5	S	Alpha Aquilæ souths 6h. 47m. P.M.	6 9	11 31	33¾	5 30	5 31	11 49	38½	5 51		○ 1		1 25	1 50	278
6	S	19TH S. aft TRIN.	6 10	11 48	33½	5 27	6 49	Afternoon	33½	6 18		2		2 10	2 30	279
7	M	[*Faith*	6 12	12 5	33	5 25	8 7	1 31	28¾	6 44		3		2 55	3 15	280
8	Tu	Length of day 11h. 8m.	6 14	12 22	32¾	5 22	9 21	2 21	24¾	7 12		4		3 35	3 50	281
9	W	*St. Denys* [beg	6 16	12 38	32½	5 20	10 30	3 11	21½	7 45		5		4 10	4 30	282
10	Th	Oxf. and Cam. T.	6 17	12 54	31¾	5 18	11 35	4 1	19½	8 22		6		4 50	5 5	283
11	F	Old Michael. Day	6 19	13 9	31½	5 15	Afternoon	4 51	18½	9 5		7		5 25	5 45	284
12	S	Fire Insur. due	6 20	13 24	31¼	5 13	1 26	5 40	18¼	9 55		☽		6 5	6 30	285
13	S	20TH S. aft. TRI-	6 22	13 39	30¾	5 11	2 10	6 29	19	10 51		9		6 50	7 20	286
14	M	NITY. Translation of Edward the Confessor.	6 22	13 53	30½	5 8	2 47	7 16	20¾	11 50		10		7 55	8 35	287
15	Tu	Beta Aquilæ souths 6h. 11m. P.M.	6 25	14 6	30	5 6	3 18	8 1	23½	Morning.		11		9 20	10 0	288
16	W	Alpha Cygni souths 6h. 56m. P.M.	6 27	14 19	29¾	5 4	3 45	8 46	26¾	0 51		12		10 40	11 15	289
17	Th	*Etheldreda*	6 28	14 32	29¼	5 2	4 8	9 31	30⅓	1 56		13		11 50	No Tide.	290
18	F	*St. Luke*	6 30	14 43	29	5 0	4 32	10 15	34¾	3 3		14		0 15	0 35	291
19	S	Alpha Aquarii souths 8h 7m P.M.	6 31	14 54	28½	4 58	4 53	11 0	39¼	4 10		15		0 55	1 15	292
20	S	21ST S. aft TRIN.	6 32	15 5	28¼	4 56	5 15	11 45	43¾	5 19		●		1 30	1 45	293
21	M	Length of day 10h 20m	6 34	15 15	27¾	4 54	5 40	Morning.		6 27		17		2 5	2 20	294
22	Tu	Length of night 13h 44m	6 36	15 24	27½	4 52	6 6	0 33	48¼	7 40		18		2 35	2 55	295
23	W	Twilight ends 6h 42m	6 38	15 33	27¼	4 50	6 37	1 23	52¼	8 53		19		3 10	3 30	296
24	Th	Day breaks 4h 47m	6 40	15 40	26¾	4 47	7 15	2 16	55½	10 5		20		3 45	4 5	297
25	F	*St. Crispin*	6 42	15 47	26½	4 45	8 3	3 11	57¾	11 13		21		4 20	4 40	298
26	S	Alpha Pegasi souths 8h 37m P.M.	6 44	15 54	26	4 43	9 0	4 9	59	Afternoon		22		5 0	5 20	299
27	S	22ND. S.aft.TRIN	6 46	16 0	25¾	4 41	10 5	5 7	58¾	1 10		☾		5 45	6 15	300
28	M	*St. Simon and St.*	6 48	16 4	25½	4 39	11 18	6 4	57	1 54		24		6 40	7 15	301
29	Tu	[*Jude*	6 50	16 9	25	4 37	Morning.	7 1	54¼	2 32		25		7 50	8 35	302
30	W	Alpha Andromedæ souths 9h 21m	6 51	16 12	24¾	4 36	0 34	7 55	50¼	3 2		26		9 20	10 5	303
31	Th	Twilight ends 6h 26m	6 53	16 15	24⅓	4 34	1 53	8 48	45½	3 28				10 50	11 20	304

OCTOBER.

THE SUN is situated south of the Equator, and is moving south. On the 23rd day, at 6h. 13m. P.M., he passes from the sign Libra to Scorpio (the Scorpion), having been in the former sign 30 days 8 hours and 13 minutes. He rises and sets on the 11th, at the E. by S. and W. by S.; and on the 30th, at the E.S.E. and W.S.W. points of the horizon respectively. On the 1st day he is 95,039,000 miles from the Earth.

The MOON enters Leo on the 1st; Virgo on the 4th; Libra on the 7th; Ophiuchus on the 9th; Sagittarius on the 11th; Capricornus on the 13th; Aquarius on the 16th; Pisces on the 17th; Cetus on the 19th: she is near Pisces and Cetus on the 21st; and Aries and Cetus on the 22nd: she enters Taurus on the 22nd, and passes the Milky Way on the 25th: she enters Gemini on the 26th; Cancer on the 27th; Leo on the 28th; and Virgo on the 31st.

She is above the horizon when the Sun is below, during the morning hours from the 18th to the end of the month, and during the evening hours from the 8th to the 25th.

She is north of the Equator till the 5th, on which day she crosses the Equator going southward, and reaches her extreme south position on the 12th: she then begins to move northward; is on the Equator on the 19th, and on the 26th reaches an extreme north position.

She is near Mercury and Jupiter on the 5th; Mars on the 6th; Venus on the 9th; Saturn on the 20th; and Uranus on the 20th.

MERCURY is in the constellation Virgo throughout the month.

He is a morning star after the 8th, till which day the Sun rises before him; on the 15th he rises at 5h. 12m., being 1h. 3m. before the Sun; on the 24th he rises at 4h. 51m., being 1h. 50m. before the Sun; and on the last day, at 5h. 15m., the Sun rising 1h. 49m. afterwards. He is favourably situated from the 15th for observation before sunrise. On the 15th he rises midway between the E. and E. by S. points of the horizon; and near the end of the month the point of his rising is E. by S. nearly. He moves westward among the stars till the 15th; is stationary among them on the 16th; and moves eastward from the 17th, as is shewn in the diagram exhibiting his path in September.

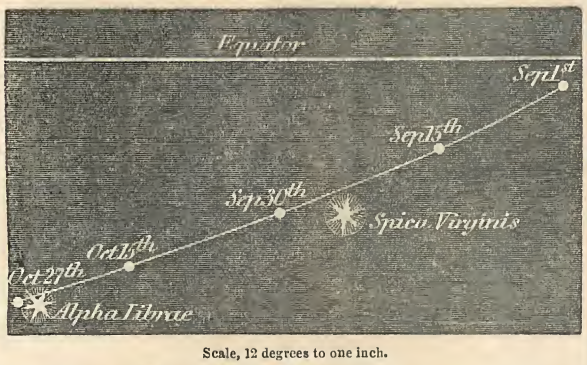
VENUS is in the constellation Libra till the 3rd, and in that of Scorpio from the 4th to the 26th; and in Sagittarius on the 27th.

She is an evening star; and sets, on the 1st, at 6h. 48m. P.M.; on the 15th, at 6h. 24m. P.M.; and on the last day, at 6h. 3m. P.M.; at the S.W. by W. at the beginning, and at the S.W. at the end of the month. She moves slowly eastward among the stars; is at her greatest elongation on the 6th; is near the Moon on the 9th, and Antares on the 14th. For her path among the stars, see the diagram in November; and for her telescopic appearance, see the engraving in December. She is now becoming brilliant.

MARS is in the constellation Virgo till the 14th, and then enters Libra.

He is an early evening star; and sets, on the 1st, at 6h. 9m. P.M.; on the 15th, at 5h. 32m. P.M.; and on the last day, at 4h. 55m. P.M.; near W. by S. at the beginning, and the W.S.W. points of the horizon on the 18th. He is moving eastward among the stars, and is near the Moon on the 6th. His altitude above the horizon when he souths, at the beginning of the month, is $28°\frac{3}{4}$; and is $21°\frac{3}{4}$ at the end of the month. His path among the stars is shewn in the preceding diagram.

PATH OF MARS FROM SEPTEMBER 1 TO OCTOBER 27, 1850.

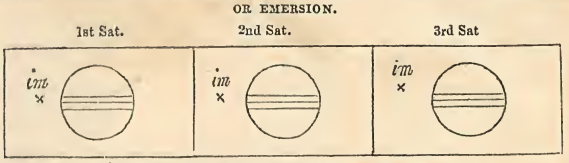


Scale, 12 degrees to one inch.

JUPITER is in the constellation Virgo throughout the month.

He sets, at the beginning of the month, the same time as the Sun sets; and after that time, he sets before the Sun. He rises, on the 1st, at 5h. 39m. A.M.; and on the last, at 4h. 18m. A.M., at the east point of the horizon. His altitude on southing, on the 1st, is $37°\frac{3}{4}$; and on the last day, is $35°\frac{1}{4}$. His motion is slowly eastward among the stars; and he is near the Moon on the 5th. His path among the stars is shewn in the diagram in May.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



SATURN is in the constellation Pisces throughout the month.

He is visible throughout the night; and rises midway between the E. and E. by N. points of the horizon, on the 1st day, at 6h. 3m. P.M.; on the 15th, at 5h. 6m. P.M.; and on the last day, at 4h. 0h. P.M. He souths at an altitude of $42°\frac{3}{4}$ nearly. He moves slowly westward among the stars; and is near the Moon on the 20th. See the diagram of last month.

URANUS is in the constellation Aries throughout the month.

He rises, on the 1st, at 6h. 9m. P.M.; and on the 31st, at 4h. 9m. P.M. He souths, on the 15th, at 15 minutes after midnight, at an altitude of 49°. He moves slowly westward among the stars; and is near the Moon on the 20th.

NEPTUNE rises before the Sun sets; and sets, on the 1st, at 3h. 6m. A.M.; and on the last day, at 1h. 0m. A.M.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

(*Continued from page* 37.)

equinoxes, viz. 186 days, 10 hours, and 57 minutes, is 7 days, 15 hours, and 58 minutes longer than the interval between the autumnal and vernal equinoxes. The Sun moves with the greatest velocity when at a point situated near the winter solstice; his daily motion at this time is about 1 degree, 1 minute, and 10 seconds. He moves with the least velocity when at a point near the summer solstice, when his daily motion is about 57 minutes and 11 seconds. It is constantly varying between these points. The average of all his daily motions is 59 minutes and 11 seconds nearly, which is his rate of motion about the beginning of April and October.

The point of the solar orbit which is at the greatest distance from the earth is called the *apogee* (away from the Earth); and the apparent diameter of the Sun at this time, as viewed from the Earth, is about 31 minutes and 31 seconds, which is its least value. The point of the solar orbit which is occupied by the Sun when he is nearest the Earth is called *perigee* (near the earth); and at this time his apparent diameter is about 32 minutes and 36 seconds, which is its greatest value. The average of all his apparent diameters, or that diameter of the Sun when he is at his average distance, is about 32 minutes and 3 seconds.

The Sun when viewed by the naked eye appears to be uniformly luminous, but when examined by means of the telescope there frequently appear some spots of an irregular and ill-defined form upon his surface. These spots for some time past have been very frequent. Sometimes they are of an immense size, and visible without the aid of a telescope. These spots first appear at the eastern edge of the Sun, and disappear at his western edge; and at times the same spots, after the lapse of nearly a fortnight, re-appear at the eastern edge of the Sun. The interval of time between the same spots occupying the same relative position is about 27 days and 8 hours.

The motion of the Moon among the stars is very rapid. She passes over a space equal to her diameter in about one hour; and in the course of a few hours the apparent distances between her and adjacent stars are very different. Her apparent motion, like that of the Sun, is *always* from west to east.

The various illustrations in this Almanack, exhibiting the apparent paths of the planets, include that of Mercury from January 1 to the middle of December; that of Venus from March 1 to the end of the year; that of Mars from January 1 to October 27; and those of Jupiter and Saturn for the whole year.

From these diagrams it will be remarked, that the apparent motions of the

(*Continued on page* 45.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month.	Mercury. Afternoon	Venus. Afternoon	Mars. Afternoon	Jupiter. Morning.	Saturn. Morning.	Neptune. Morning.
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	0 37	2 46	0 56	11 39	0 34	9 52
6	Morn.	2 47	0 49	11 23	0 13	9 31
11	11 23	2 48	0 43	11 7	Aftern.	9 11
16	10 54	2 48	0 36	10 52	11 27	8 51
21	10 41	2 48	0 30	10 36	11 6	8 31
26	10 39	2 46	0 24	10 20	10 45	8 11
31	10 45	2 44	0 18	10 4	10 24	7 50

JUPITER'S SATELLITES.

Are not visible, Jupiter being too near to the Sun.

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Stars.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
Regulus	1	2 1 52 P.M.	In Daylight	17° N. & 90° N.
		2 2 47 P.M.		
19 Capricorni	6	14 5 53 P.M.	Dark	14° N. & 72° N.
		14 7 14 P.M.	Bright	
21 Capricorni	6	14 10 1 P.M.	Dark	6° N. & 72° N.
		14 11 14 P.M.	Bright	
Gamma Tauri	3	23 7 16 P.M.	Bright	47° N. & 90° N.
		23 7 33 P.M.	Dark	
75 Tauri	6	23 11 3 P.M.	Bright	21° N. & 90° N.
		23 At Midnight		

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

NEW MOON ..	5D.	2H.	56M.	P.M.
FIRST QUART.	13	2	30	A.M.
FULL MOON ..	21	3	11	A.M.
LAST QUART.	28	4	59	A.M.
PERIGEE ..	2	11		P.M.
APOGEE ..	14	6		P.M.
PERIGEE ..	29	4		P.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	MERCURY. Right Ascension	MERCURY. Declination South.	VENUS. Right Ascension	VENUS. Declination South.	MARS. Right Ascension	MARS. Declination South.	JUPITER. Right Ascension	JUPITER. Declination South.	SATURN. Right Ascension	SATURN. Declination North.	URANUS. Right Ascension	URANUS. Declination North.	NEPTUNE. Right Ascension	NEPTUNE. Declination South.
1	13h. 17m	11°52′	15h. 25m	22° 1′	13h. 36m	9°44′	12h. 18m	0° 45′	1h. 12m	4° 37′	1h. 49m	10°39′	22h. 27m	10° 30′
6	13 1	9 11	15 46	23 32	13 48	10 59	12 22	1 11	1 10	4 28	1 49	10 35	22 27	10 32
11	12 42	5 30	16 7	24 50	14 1	12 33	12 26	1 36	1 9	4 19	1 48	10 31	22 27	10 33
16	12 33	2 47	16 27	25 55	14 15	13 25	12 30	2 1	1 7	4 10	1 47	10 27	22 27	10 35
21	12 39	2 19	16 46	26 46	14 28	14 36	12 34	2 26	1 6	4 51	1 46	10 22	22 57	10 37
26	12 57	3 50	17 4	27 23	14 41	15 43	12 38	2 51	1 4	3 2	1 46	10 18	22 26	10 38

OCTOBER.—HERRING FISHING, ISLE OF MAN.

NOTES ON NATURAL HISTORY.—OCTOBER.

In this month many of the summer birds take leave of this country, and the winter birds arrive. Among the latter may be mentioned the wild swan, the wild goose, and the wild duck. All these aquatic birds make a harsh screaming as they pass over the land, which is the more annoying as they all fly at night as well as by day. The stork is the only one of these birds of passage which is not clamorous. "Before the storks take their departure from their northern summer residence," says Mr. Forster, "they assemble in large flocks, and seem to confer on the plan of their projected route. Though they are very silent at other times, on this occasion they make a singular clattering noise with their bills, and all seems bustle and consultation. It is said that the first north wind is the signal for their departure, when the whole body become silent, and move at once, generally in the night, and, taking an extensive spiral course, they are soon lost in the air." Cranes, on the contrary, are very noisy; but they are very rare in this country. Wild geese are, however, common; and the flocks are always in the shape of a wedge when they fly, so that the birds may cut the air with less individual exertion. Sometimes, however, they change their line to the resemblance of an A and an L, and sometimes they form a straight line; but the reason for these changes is not known. The Canada or cravat goose is only occasionally seen in this country: it is a remarkably beautiful goose, with a glossy black neck and white cheeks, which render it, as Mr. Waterton observes, "so particularly conspicuous, that those who have seen it once can never be at a loss to recognise it when viewed among all the other species of the goose tribe. There can be nothing," continues Mr. Waterton, "more enlivening to rural solitude than the trumpet-sounding notes of the Canada goose. They can be heard here [at Walton Hall] at most hours during the day, and often during the night." Mr. Waterton afterwards bought two barnacle geese at Rotterdam; and on their arrival at Walton Hall, they were turned on the lake in company with the Canadian geese. The following autumn one of these little barnacle ganders paired with a large old Canadian goose, and a nest having been made on the island the ill-assorted pair took possession of it, and the goose, having laid her eggs, began to sit. "Nothing," says Mr. Waterton, "could exceed the assiduity with which the little barnacle stood guard, often on one leg, over his bulky partner, day after day, as she was performing her tedious task. If anybody approached the place, his cackling was incessant; he would run at him with the fury of a turkey-cock; he would jump up at his knees, and not desist in his aggressions until the intruder had retired." At last two young geese were produced; and the vociferous gesticulations and struttings of the little gander were beyond all endurance when he first got sight of his long-looked for progeny. The hybrids were elegantly shaped, and neither so large as the mother nor so small as the father, and they partook of the colours of both parents.

The trees are now almost all stripped of their leaves, but those which remain become of the most brilliant and vivid colours. All nature, however, assumes a gloomy appearance, which is only enlivened by the recollection that the return of spring will restore the beauty of the groves. The season, however, forcibly recalls the following beautiful lines from the beginning of Pope's translation of Homer:—

> Like leaves on trees the race of man is found—
> Now green in youth, now withering on the ground;
> Another race the following spring supplies,
> They fall successive and successive rise:
> So generations in their course decay,
> So flourish these when those are pass'd away.

Among the plants which are still growing luxuriantly on moist heaths and

MARSH-PENNYWORT.

in marshy places, may be mentioned the little plant called marsh-pennywort or white-rot (*Hydrocótyle vulgàris*); the latter name alluding to its supposed evil properties in giving the rot to sheep; and the former to the situations in which it is found, and the shape of its leaves. The flowers are inconspicuous, but the plant itself is rather pretty; and it has the advantage of looking green and fresh when nearly all the vegetation around it has been brown and withered.

At this season immense quantities of herrings are found on the southern coast of England. The shoals of this fish (which is said to derive its name from the German word *heer*, an army, in allusion to its countless multitudes) are first seen off the Shetland Islands in April and May; but in the succeeding months they seem gradually to advance southward; till at last, about the beginning of September, there appears on the south coast an immense mass of fish, divided into distinct columns of five or six miles in length, by three or four in breadth. These dense masses drive the water before them with a kind of rippling motion; and, as a writer on the subject has expressed it, "sometimes they sink for the space of ten or fifteen minutes, then rise again to the surface, and in bright weather reflect a variety of splendid colours, like a field of the most precious gems." Great shoals of pilchards appear in the same manner on the coast of Cornwall.

The water-scorpion (*Nèpa*) is an extremely ferocious insect, which is said to be so savage as to destroy insects merely for the pleasure of killing them; as one that was put into a basin of water with some young tadpoles, is said to have killed them all without attempting to eat one. The common water-scorpion (*Nèpa cinèrea*) is found in ditches, ponds, and other pieces of stagnant water. These insects swim but slowly, and spend most of their time at the bottom of the water, seeking in the mud those insects which serve them as food, and which they seize very forcibly with their crab-like feet. At night they leave the ponds, and fly about with the greatest rapidity. The larva only differs from the perfect insect in its want of wings. It proceeds from an egg of a very singular form: it is oval, and from one end proceed several delicate filaments, which give it the appearance of the seeds of some of the plants belonging to the *Compósitæ*. The water-scorpion sometimes leaves the water, and is seen crawling on the grass.

WATER-SCORPION.

The water-boatman, or boat-fly (*Notonécta*), is a very singular aquatic insect, which always swims on its back, striking out its legs like oars, to propel itself along. It is very ferocious, and not only destroys all the smaller insects which fall in its way, but it will attack insects larger than itself. Mr. Spence also mentions that one which he caught wounded his finger with its rostrum, and gave a sharp, severe pain, as though it had been burned. These insects are only found in standing waters or sluggish rivers, and they swim on the surface of the water, unless they are disturbed; but, on the approach of danger, they immediately disappear, though they cannot remain any great length of time without coming to the top to breathe. They frequently creep on the water-plants and the mud, in search of the insects on which they feed; and when the weather is fine and warm, they often land and fly about, sometimes to a considerable distance. The female lays her eggs, which are white and long in shape, on the leaves of aquatic plants; and, as soon as the young are hatched, they begin to swim on their backs like their mother. The larva only differs from the perfect insect in the want of wings.

BOAT-FLY.

To those who visit the sea-coast, the sea-weeds which are washed on shore by the tide afford a great source of enjoyment, from the beauty and variety of their forms and colours. The *Algæ* or sea-weeds are, in fact, the vegetation of the bottom of the sea; and most of them grow under water, being torn from their roots by the force of the rushing waters, and washed on the beach by the rolling waves. Some species, it is true, appear to be always loosely floating in the water; but by far the greater number "grow attached to rocks, stones, or other substances," being fixed by the extension of the base of the stem into a broad concave plate, which either grasps the stone to which it adheres itself, or sends out numerous fibrils, which twine themselves round the rocks so firmly that they cannot be separated without laceration of their substance. The *Algæ* are all edible; and, indeed, extremely nutritious, as they consist principally of albumen and mucilage: the latter quality renders them very useful in coughs and other affections of the chest, and as a substitute for isinglass in making jelly. Besides these qualities, some of the sea-weeds contain iodine, and most of them, when burnt, yield kelp, which is used in the manufacture of glass, &c. One of the most curious of all the kinds of sea-weed is what is sometimes called the Gulf weed; but it is also known by the name of *Sargàssum*, or Sea Grape. This *Alga* is a native of the Tropics, and is found principally in the Gulf of Mexico, but it is sometimes washed on shore on the Orkney Islands, and it has been known occasionally to reach the coast of Scotland. It is, however, most abundant in the Atlantic, one part of which is called by mariners the Weedy Sea, from the immense quantity of this weed which floats on the surface of the water, and which sometimes actually impedes "the course of vessels for days together; the ocean for hundreds of miles presenting the appearance of a vast swamp or inundated meadow, and justifying the fears of the sailors in the first voyage of Columbus, who observing their slow progress and the increasing quantity of the weed, became alarmed lest, forcing their passage against the will of Heaven in search of an unknown country, their return might be rendered impossible. The accumulation of this weed in the Northern Atlantic extends nearly across its whole breadth, beginning on the east at the 30th meridian, and reaching the Bahama Islands on the west; the greatest quantities being aggregated at its eastern and western extremities, forming, as it were, two great banks, of which the former is more extensive, being upwards of twelve hundred miles from north to south." The bladder chain, or *Cystoseìra*, is of a dark olive green or brown hue, becoming almost black when dry. It is of a firm leathery substance, and is common on the coasts of Devonshire and Cornwall, and in the south of Ireland. It is interesting from the manner in which it is fixed to the stones, as, instead of having a root, it is attached by a flat hard disk, which, when clinging to the stone, looks just like one of the leather suckers with which boys amuse themselves by carrying stones. The *Halidrys*, or sea tree, is a very common sea-weed, which is fixed to rocks and stones by a larger sucker, frequently from one to four feet long. The bladder *Fucus* is another very common sea-weed, and, in fact, it forms the great mass of the weeds thrown by the sea upon the land, which are collected for the purposes of manure. It is sometimes called the sea-wrack, and in other places kelp-ware, as it is burnt for the sake of making kelp. This weed has a number of little bladders in its fronds, which children amuse themselves with breaking by clapping the fronds between their hands. The seed-vessels are shaped like a pine-apple, and they are produced at the extremity of the fronds. There are several other kinds of *Fucus*, all of which are very common on the British coast. The sea-weed called *Alària*, or badder-locks, is very good to eat; and what is called the tangle (*Laminària digitàta*) is boiled for the purpose of feeding cattle. Dr. Neill states, "that the stems in Scotland are sometimes made into knife-handles: for this purpose a pretty thick stem is selected and cut into pieces about four inches long; into these, while fresh, are stuck blades of knives, such as gardeners use for pruning and grafting. As the stem dries it contracts and hardens, closely and firmly embracing the hilt of the blade. In the course of some months the handles become quite firm, and very hard and shrivelled, so that when tipped with metal they are hardly to be distinguished from harts-horn." There are many other kinds of sea-weed, particularly the beautiful pink *Delesseìria;* the *Ptilòta plumòsa*, which is sometimes of a pale crimson, and sometimes green; and several other extremely beautiful plants of the most brilliant colours and delicate texture.

M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'Clock.	SUN. Height above horizon	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Height above horizon	MOON. Sets. Afternoon	Moon's Age.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.		H. M.	H. M.	
1	F	*All Saints*	6 56	16 16	24	4 32	3 11	9 39	40¾	3 54	27	11 50	No Tide.	305
2	S	Mich. Term beg.	6 57	16 17	23¾	4 31	4 28	10 29	35½	4 19	28	0 20	0 45	306
3	S	23RD S.aft.TRIN	6 59	16 17	23½	4 29	5 43	11 19	30¾	4 43	29	1 10	1 30	307
4	M	William III. land	7 0	16 16	23¼	4 27	6 59	Afternoon	26½	5 9	○	1 50	2 10	308
5	Tu	Gunpowder Plot	7 2	16 15	22¾	4 25	8 12	1 0	22¾	5 40	1	2 30	2 50	309
6	W	*Leonard*	7 4	16 12	22½	4 24	9 21	1 51	20¼	6 16	2	3 10	3 25	310
7	Th	Length of day 9h 16m	7 6	16 9	22¼	4 22	10 22	2 41	18½	6 57	3	3 45	4 5	311
8	F	Length of night 14h 45m	7 7	16 5	22	4 22	11 19	3 32	17¾	7 44	4	4 20	4 40	312
9	S	Lord Mayor's D.	7 9	16 0	21¾	4 20	Afternoon	4 21	18¼	8 37	5	4 55	5 15	313
10	S	24TH S.aft.TRIN.	7 10	15 55	21½	4 19	0 47	5 9	19¼	9 35	6	5 35	5 55	314
11	M	*St. Martin*	7 12	15 48	21	4 17	1 20	5 55	22	10 36	☽	6 20	6 45	315
12	Tu	Camb. T. divides	7 14	15 41	20¾	4 16	1 48	6 40	25	11 39	8	7 10	7 45	316
13	W	*Britius*	7 16	15 33	20½	4 14	2 13	7 24	28¾	Morning.	9	8 25	9 5	317
14	Th	Alpha Pegasi souths 7h 24m P.M.	7 18	15 24	20¼	4 12	2 34	8 8	32¾	0 45	10	9 40	10 20	318
15	F	*Machutus*	7 20	15 14	20	4 11	2 57	8 52	37¼	1 51	11	10 50	11 25	319
16	S	Alpha Andromedæ souths 8h 17m P.M.	7 21	15 3	19¾	4 10	3 17	9 37	41¾	3 0	12	11 50	No Tide.	320
17	S	25TH S.af.TRIN.	7 23	14 52	19½	4 9	3 40	10 24	46¼	4 9	13	0 15	0 35	321
18	M	[Hugh, Bishop of Lincoln	7 25	14 39	19¼	4 8	4 6	11 14	50¾	5 20	14	0 55	1 15	322
19	Tu	Alpha Arietis souths 10h 3m P.M.	7 27	14 26	19	4 7	4 35	Morning.	—	6 35	●	1 30	1 50	323
20	W	Ed. King & Mar.	7 28	14 12	18¾	4 6	5 11	0 6	54½	7 49	16	2 10	2 30	324
21	Th	Princess Royal b.	7 30	13 57	18½	4 4	5 56	1 2	57	9 1	17	2 45	3 5	325
22	F	*St. Cecilia*	7 31	13 42	18¼	4 3	6 50	2 1	58¾	10 10	18	3 25	3 45	326
23	S	Old Martin. Day	7 33	13 26	18	4 2	7 54	3 0	59¼	11 8	19	4 9	4 30	327
24	S	26TH S. aft. TRIN	7 34	13 8	18	4 0	9 6	4 0	58	11 58	20	4 50	5 15	328
25	M	Mich. Term ends.	7 36	12 50	17¾	3 58	10 22	4 57	55½	Afternoon	21	5 40	6 10	329
26	Tu	[*Catherine*	7 37	12 32	17½	3 57	11 40	5 52	51¾	1 8	☾	6 40	7 10	330
27	W	Princess Mary Adelaide [born, 1833.	7 39	12 12	17¼	3 56	Morning.	6 45	47½	1 36	23	7 40	8 20	331
28	Th	Day breaks 5h 38m	7 40	11 52	17¼	3 55	0 57	7 35	42½	1 59	24	9 5	9 40	332
29	F	Twilight ends at 5h 58m.	7 42	11 31	17	3 55	2 13	8 24	37½	2 22	25	10 15	10 55	333
30	S	*St. Andrew*	7 44	11 9	16¾	3 54	3 29	9 13	32¾	2 47	26	11 30	11 55	334

DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 4h. 6h. After Sunset. O'Clock. 6h. 8h. 10h.

NOVEMBER.

The Sun is situated south of the Equator, and is moving south. He passes, on the 22nd day, at 3h. 7m. P.M. from the sign Scorpio to Sagittarius, having been in the former sign 29 days 20 hours and 54 minutes. He rises and sets on the 1st near the E.S.E. and W.S.W.; and on the 26th, at the S.E. by E. and S.W. by W. points of the horizon. On the 1st day his distance from the earth is 94,224,000 miles.

The Moon is in Virgo till the 3rd; on which day, at 9h. P.M., she enters Libra, Ophiuchus on the 5th, Sagittarius on the 7th, Capricornus on the 10th, Aquarius on the 12th, Pisces on the 14th, Cetus on the 15th, near Pisces and Cetus on the 17th, and she is moving on the boundaries of Aries and Cetus on the 19th; she enters Taurus on the 19th, crosses the Milky Way on the 21st, enters Gemini on the 22nd, Cancer on the 23rd, Leo on the 25th, and Virgo on the 27th.

She is above the horizon when the sun is below; during the morning hours, from the 15th to the end of the month; and during the evening hours, from the 6th to the 22nd.

She is on the Equator on the 1st; at her extreme south position on the 8th: crosses the Equator on the 16th; at her extreme north position on the 22nd; and is again on the Equator on the 29th, going southward.

She is near Jupiter on the 1st; Mercury on the 2nd; Mars on the 4th; Venus on the 7th; Saturn on the 16th; Uranus on the 17th; and Jupiter on the 29th.

Mercury is in the constellation Virgo till the 8th; in Libra from the 9th to the 23rd; in Scorpio from the 24th to the 27th; and he moves on the boundaries of Scorpio and Ophiuchus to the end of the month.

He is a morning star till towards the end of the month. He rises on the 1st at 5h. 19m.; on the 10th, at 6h. 6m.; and on the 25th, at 7h. 30m. The Sun on these days rises 1h. 37m., 1h. 4m., and 6m. after the planet. The planet rises on the 1st, at the E. by S.; on the 12th, at the E.S.E.; and on the 25th, at the S.E. by E. points of the horizon. He moves eastward among the stars during the month; is near the Moon on the 2nd, and Mars on the 28th. The position they occupy in the heavens at these times will be seen by reference to the annexed diagram, showing the path of Mercury in the heavens.

PATH OF MERCURY FROM NOVEMBER 1 TO DECEMBER 13, 1850.

Scale, 12 degrees to one inch.

Venus is in the constellation Scorpio throughout the month.

She is an evening star; and sets on the 1st, at 6h. 2m. P.M.; on the 15th, at 5h. 42m. P.M.; and on the last day, at 5h. 10m. P.M.; near the S.W. point of the horizon all the month. She moves slowly eastward to the 23rd; is stationary from the the 24th to the 27th; and moves slowly westward among the stars to the 28th. She is at her greatest brilliancy on the 10th; and is near the Moon on the 7th. Her path in the heavens is shown in the annexed engraving; and for her telescopic appearance see next month.

Mars is in the constellation Libra till the 19th; on which day he enters Scorpio. He sets on the 1st, at 4h. 52m. P.M.; and on the last day, at 3h. 47m. P.M. Till the 24th he sets a few minutes after the Sun; and after the 24th, a few minutes before the Sun. He sets near the S.W. by W. point of the horizon; he is moving eastward among the stars; is near the Moon on the 4th, and Mercury on the 28th. His altitude above the horizon when he souths, on the 1st, is 21°¼; and it is 16°½ on the last day.

Jupiter is in the constellation Virgo throughout the month.

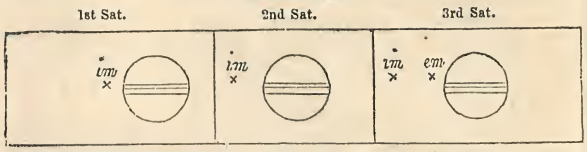
He rises on the 1st at 4h. 15m. A.M.; and on the last day at 2h. 51m. A.M., at the E. point of the horizon. His altitude on southing, on the 1st, is 35°¼; and on the last day, is 33°¼. He moves eastward among the stars; is near the Moon on the 1st, and again on the 29th. His path among the stars is shown in the diagram in May.

PATH OF VENUS FROM AUGUST 21 TO DECEMBER 31, 1850.

Scale, 24 degrees to one inch.

Jupiter's Satellites.—A few Immersions, of which those of the first, second, and third Satellites are visible. The relative position of the Satellites to Jupiter at the instant of the eclipse is shown in the annexed diagram, as viewed through an inverting telescope.

RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Pisces throughout the month.

He is visible throughout the greater part of the night. He rises before the Sun sets; and sets midway between the W. and W. by N. points of the horizon, on the 1st, at 4h. 46m. A.M.; and on the last day, at 2h. 44m. A.M. He souths at an altitude of 42° nearly. He moves slowly westward among the stars; and is near the Moon on the 16th. See the diagram in September.

Uranus is in the constellation Aries throughout the month.

He sets on the 1st, at 6h. 3m. A.M.; and on the 30th, at 4h. 2m. A.M. He souths at 10h. 4m. P.M., at an altitude of 48°¾, on the 15th. He moves slowly westward among the stars; and is near the Moon on the 17th.

Neptune sets on the 1st, at 0h. 55m. A.M.; and on the last day, at 10h. 59m. P.M.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS.

(*Continued from page* 41.)

planets are not always, like those of the Sun and Moon, in the same direction, but that they generally are moving in that direction, viz. from west to east.

Till the planets Mercury and Venus reach their greatest eastern elongation, or those planets, whose distances from the Sun are greater than that of the Earth, reach their eastern quadratures, their apparent motions are from west to east; in the course of a few days afterwards they seem to be stationary among the stars.

(*Concluded on page* 49.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN,

Days of the Month.	Mercury. Morning.	Venus. Afternoon	Mars. Afternoon	Jupiter. Morning.	Saturn. Afternoon	Uranus. Afternoon
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	10 47	2 43	0 16	10 1	10 19	7 46
6	10 56	2 38	0 11	9 45	9 59	7 26
11	11 6	2 31	0 6	9 29	9 38	7 6
16	11 18	2 21	Morn.	9 13	9 17	6 46
21	11 30	1 7	11 56	8 57	8 56	6 26
26	11 42	1 49	11 51	8 40	8 36	6 6
30	11 53	1 31	11 48	8 27	8 20	5 50

JUPITER'S SATELLITES.

Eclipses of 1st Sat. Immersion.	Eclipses of 3rd Sat. Immersion.
D. H. M.	D. H. M.
23 4 42 A.M.	15 6 7 A.M.
30 6 36 A.M.	
2nd Sat.	
15 5 37 A.M.	

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.	At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.		
A Star	6	7 6 29 P.M.	Bright	1° S. &
		7 6 45 P.M.	Bright	60° N.
33 Sagittarii	6	8 5 8 P.M.	Dark	25° N. &
		8 6 23 P.M.	Bright	68° N.
45 Aquarii	6	12 9 25 P.M.	Dark	20° N. &
		12 10 3 P.M.	Bright	76° N.
Chi 3 Orionis	5	21 9 10 P.M.	Bright	12° N. &
		21 10 5 P.M.	Dark	78° N.

TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

New Moon ..	4D.	2H.	40M.	A.M.
First Quart.	11	11	15	P.M.
Full Moon	19	4	35	P.M.
Last Quart.	26	0	32	P.M.
Apogee ..	11	2		P.M.
Perigee ..	23	3		P.M.

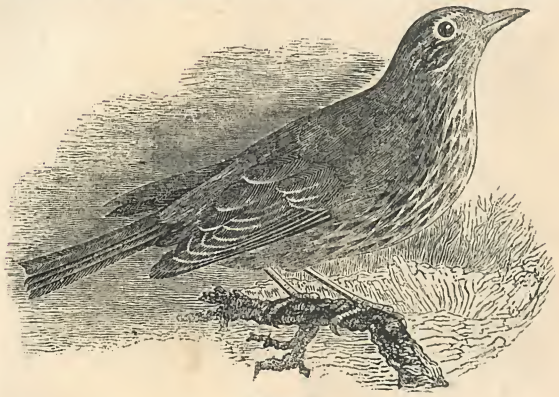
RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination South.	Venus. Right Ascension	Venus. Declination South.	Mars. Right Ascension	Mars. Declination South.	Jupiter. Right Ascension	Jupiter. Declination South.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
1	13h. 28m	7° 6′	17h. 25m	27° 51′	14h. 58m	17° 0′	12h. 42m	3° 19′	1h. 3m	3° 43′	1h. 45m	10° 13′	22h. 26m	10° 38′
6	13 57	10 15	17 39	27 58	15 12	17 1	12 46	3 42	1 2	3 36	1 44	10 9	22 26	10 38
11	14 28	13 24	17 52	27 54	15 27	18 59	12 50	4 5	1 0	3 30	1 43	10 5	22 26	10 37
16	14 59	16 21	18 2	27 37	15 41	19 52	12 53	4 27	0 59	3 24	1 42	10 1	22 26	10 35
21	15 30	19 0	18 7	27 10	15 56	20 42	12 57	4 48	0 58	3 20	1 42	9 57	22 26	10 32
26	16 3	21 16	18 9	26 30	16 11	21 26	13 0	5 8	0 58	3 16	1 41	9 54	22 26	10 30

NOVEMBER.—WHALE FISHING.

NOTES ON NATURAL HISTORY.—NOVEMBER.

The 1st of November is All Saints' Day; and the night before, which is called Allhallow E'en, is celebrated by various rural sports and modes of divination. With the commencement of November, however, the gaiety of nature seems to cease. Among birds, however, November is a gayer month than July and August; for, in November, many of them sing as agreeably as in early spring. In this month most of the summer birds take their departure, but the winter birds arrive to take their places. Among these winter birds, one of the best songsters is the redwing, which arrives in flocks from the north and north-east of



REDWING.

Europe, not later than the first week in November, arriving generally a week or two before the fieldfare; and, when the winters are severe, Mr. Yarrell informs us that it has been observed "that the redwings are unable to bear hard weather so well as the fieldfares. While in this country, the redwings inhabit parks and pleasure-grounds that are ornamented with clumps of trees; and, like the common thrush, which they most resemble in their external appearance, they seek their subsistence in mild and open weather in pasture lands and moist meadows, feeding principally on worms, snails, and other soft-bodied animals. They are much less inclined to feed on berries than most of the thrush tribe; and, should the resources usually obtained by their search on the ground be closed against them by long-continued frost and snow, the redwings are the first among birds to suffer; and during some severe seasons, such as 1799, 1814, and 1822, hundreds have been found almost starved, alike unable to prosecute their journey farther south to more congenial countries, or to bear the rigour of this." The song of the redwing is generally allowed to be very beautiful; and Linnæus, several times in his *Tour in Lapland*, mentions the song of the redwing, "whose amorous warblings from the top of a spruce fir," he says, "were delightful; its high and varied notes rivalling those of the nightingale herself." Other writers praise the "delightfully wild notes" of this bird, and mention that in Sweden and Norway, where it breeds, it is excessively shy when any one approaches its nest.

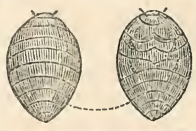
Oysters are in perfection in this month. They are generally found fixed to a rock, or some other submarine object, apparently enjoying only the nourishment brought by the waves, and scarcely giving any sign of life except by the opening and shutting of the valves. The oysters adhere to stones and other objects by means of a mucilaginous liquid with which they are covered as soon as they are formed, and which seems to be of the same nature as that with which they increase their shells. In some places, particularly at the mouths of the great African rivers, where there are great quantities of mangrove trees growing with their trunks several feet deep in the water, great quantities of oysters are found attached to the roots and lower branches of the trees; so that, as Mrs. Lee tells us, it is by no means an uncommon occurrence to send a slave to cut off a branch or two of the tree-oyster to furnish a meal. She adds, that these oysters, which are generally very small, are remarkably delicate in their flavour. Oysters are also often found fixed to the backs of crustaceous animals—such as crabs and lobsters; and occasionally to the shells of other molluscous animals. As oysters belong to that class of molluscous animals which are furnished with two muscles attaching them to their shells, they can shut the valves with great force, and compress them close with extraordinary tenacity. Several curious stories are told of monkeys being caught by oysters in this manner; and on one occasion, it is said that a cat, having ventured on the sea-shore at low water, and having attempted to seize an oyster fixed firmly to a rock, was caught by the oyster closing the valves of its shell the moment it was pricked by the claw of the cat, and held there till it was drowned by the coming in of the tide.

The fieldfare, which is very nearly allied to the redwing, appears later in the season, arriving in large flocks, which spread themselves over the whole country, covering the pasture lands, and particularly the neighbourhood of rickyards, in search of worms and slugs, or any other soft-bodied animals that they can find, though on the appearance of frost and snow they fly to the hedges and feed upon any berries they can find. The call note of the fieldfare is very harsh; and though its song is harmonious, it is very inferior in beauty to that of the redwing. The common song thrush remains in England all the year, and it feeds principally on insects, worms, and snails, picking the latter off the walls or trees on which they have fixed themselves to pass the winter, and breaking the shell very adroitly by beating it against a stone or a wall.

At this season, when the summer flowers are all over, and the ground is frequently covered with snow, there is scarcely anything left in the open air to interest the lover of a garden. It is true there is the resource of greenhouse plants; but plants in pots, when kept in a room, have generally an unhealthy appearance, as they are seldom set out in the open air, and they are kept continually in an atmosphere which is highly injurious to them. At this season, therefore, it is very desirable to try experiments on vegetation, and the method which has been discovered of raising plants in hyacinth-glasses affords a very agreeable substitute for the interest which is felt in spring by the amateur gardener in watching the developement of vegetation in the open air. It is not exactly known with whom the idea of raising plants in this manner first originated, but it has been practised for some years, as some ladies residing near Epsom had, in 1835, eaten nuts from hazel bushes which they had reared in glasses, and afterwards planted out into the open ground. The mode of managing acorns in hyacinth-glasses is thus given in the *Field Naturalist* for April, 1833:—"Let a common hyacinth-glass, or other glass if more convenient, be filled about half or a third part full of water; and a piece of card be prepared as a cover for the opening of the glass, so as to fit close and exclude the air. Fasten a strong thread or a piece of brass wire round an acorn—not iron wire, for it will rust and corrode the acorn, and frustrate the experiment. Suspend the thread or brass wire from the card, or from a small transverse bar of wood or metal beneath it, so that the acorn may be sustained at a short distance above the surface of the water, but near enough for the steam, which will be generated by the glass being kept in a warm room, to be communicated to the acorn, from which it will depend in a large drop. In a few weeks the germ will be found to burst the shell of the acorn; and in about a fortnight afterwards, the radicle, or little root, will protrude itself through the cleft, and take a downward direction into the water, where it will be continually extended and enlarged, by degrees throwing out external fibres, until, after a few days more, the other member of the germ will be seen to rise upwards till it comes near the card that covers the vessel, through which a hole must be cut to allow of its free passage. This forms the stem of the tree, which will shortly be seen to throw out two cotyledons, or seed leaves, at its extremity, and shortly again other leaves; till, in the course of a few weeks from the commencement of the experiment, the tree will have grown to the height of several inches, and be ornamented at its top with leaves two or three inches long, and wide in proportion, besides smaller ones breaking out at its sides, the root meanwhile having continued growing to a length exceeding that of the stem." In the year 1842, an account of this method of growing oaks was given in Paxton's *Magazine of Botany*, substituting a piece of cork for the card, and thread for the brass wire. In all other respects the experiment was the same. Supposing the acorn to be put into the glass in November, it will probably begin to germinate in January, or sooner, according as the acorn was fresh or old. If the acorn were but just gathered when it was put in, it will probably begin to germinate in the course of a month or six weeks at farthest; but if it were an acorn of the previous year, it would most probably not show any signs of life for a couple of months, or even more. The great point to be attended to is, keeping the cavity in the upper part of the glass above the water firmly closed, so as to prevent any evaporation of the water into the open air, since it will be impossible for the acorn to germinate unless the moisture which rises from the water is condensed and thrown back upon it; for it must be observed that air and moisture are both essential to germination, and that if the acorn is suffered to be in the water the air cannot have access to it so as to make it grow. Many instances, indeed, have been known of seeds having remained under water for several years without vegetating; but which, the moment they were exposed to the air, began to grow: while, on the other hand, seeds, when kept perfectly dry, though they are exposed to the influence of the air, will remain an extraordinary length of time without germinating.

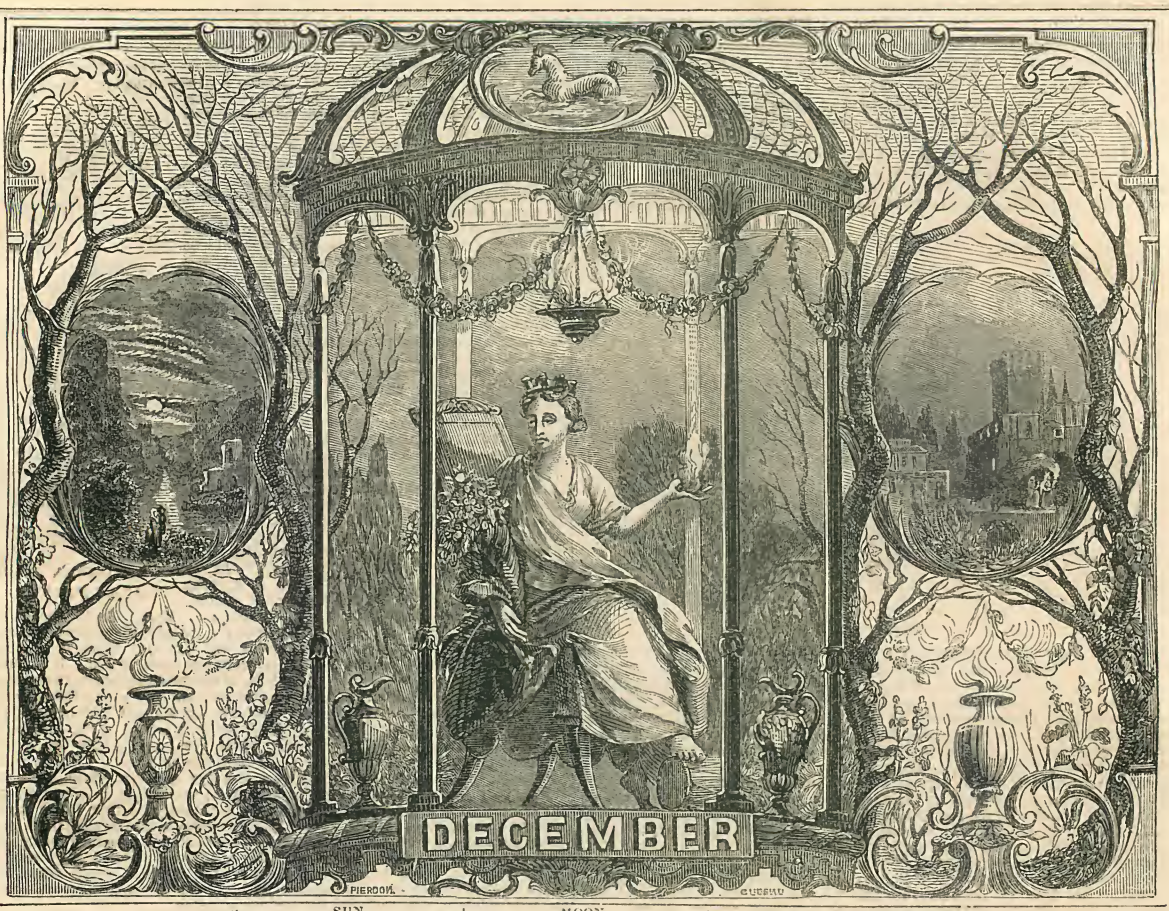
GERMINATION OF AN ACORN IN WATER.

Among the many interesting plants grown in the Botanic Garden at Kew, may be mentioned the *Opúntia cochinillifera*, a kind of Indian fig, which is often attacked by a species of *Cóccus*, which, when dried, forms the scarlet dye which we call cochineal. This Indian fig is very common in Mexico, where it is called the Nopal-tree, and where it is considered of so much consequence, from the value of the insects bred upon it, that it is introduced in the arms of the Republic. The *Opúntia* is a species of *Cáctus*, with large, flat, roundish, leaf-like stalks, which produce the flowers and fruit, without the tree bearing any leaves properly so called. On these flat, leaf-like stalks, which are extremely succulent, there often appears a white woolly substance, resembling what is called the American blight on apple-trees; and this woolly substance is the covering of the female cochineal insect, which is the insect used for the dye. When fully grown, these insects are collected in Mexico and other countries where the plant grows in great abundance, by women, who brush them off with the tail of a squirrel or a deer. They are then killed by dipping them in boiling water, or exposing them to heat in ovens or the sun, and are then ready for sale. The cochineal insect was formerly confined to Mexico; but, in the beginning of the year 1777, M. Thierry de Menonville was employed by the French Government to procure some of the insects from Mexico, for the purpose of introducing them into the French West India Islands—an enterprise for which four thousand livres had been allotted by the French Government. M. Thierry de Menonville "proceeded by the Havannah to la Vera Cruz, and was there informed that the finest cochineal insects were produced at Guaxaca, distant about seventy leagues. Pretending ill-health, he obtained permission to use the baths of the river Magdalena; but, instead of going thither, he proceeded, through various difficulties and dangers, as fast as possible to Guaxaca, where, after making his observations, and obtaining the requisite information, he affected to believe that the cochineal insects were highly useful in compounding an ointment for his pretended disorder (the gout), and therefore purchased a quantity of Nopals covered with these insects, of the fine or domestic breed, and putting them in boxes with other plants, for their better concealment, he found means to get them away as botanic trifles, unworthy of notice, notwithstanding the prohibitions by which the Spanish Government had endeavoured to hinder their exportation; and being afterwards driven by a violent storm into the bay of Campeachy, he there found, and added to his collection, a living *Cáctus*, of a species which was capable of nourishing the fine domesticated cochineal. After which, departing for St. Domingo, he arrived safely with his acquisitions, on the 25th of September in the same year, at Port-au-Prince." The insects thus introduced succeeded so well, that, in ten or twelve years, St. Domingo became a powerful rival to Mexico in the production of the cochineal; but, during the political troubles of St. Domingo which followed the French Revolution, the plantations were destroyed. The value of the cochineal exported from Mexico is said by Humboldt to be about £500,000 annually. It is the female insect only from which the dye is taken; and the male insect has wings.



THE FEMALE OF THE COCHINEAL INSECT (COCCUS CACTI).

THE MALE OF THE COCHINEAL INSECT.



M D	W D	ANNIVERSARIES, OCCURRENCES, FESTIVALS, &c.	SUN. Rises.	SUN. Souths. Before 12 o'clock.	SUN. Souths. Height above horizon	SUN. Sets.	MOON. Rises. Morning.	MOON. Souths. Morning.	MOON. Souths. Height above horizon	MOON. Sets. Afternoon	DURATION OF MOONLIGHT. Before Sunrise. O'Clock. 2h. 4h. 6h.	Moon's Age.	DURATION OF MOONLIGHT. After Sunset. O'Clock. 6h. 8h. 10h.	HIGH WATER AT LONDON BRIDGE. Morning.	HIGH WATER AT LONDON BRIDGE. Afternoon	Day of the Year.
			H. M.	M. S.	Deg.	H. M.	H. M.	H. M.	Deg.	H. M.				H. M.	H. M.	
1	S	1st S. in Advt.	7 46	10 47	16¾	3 53	4 42	10 2	28¼	3 12		27		No Tide.	0 20	335
2	M	Length of day 8h 4m	7 48	10 24	16½	3 52	5 54	10 51	24¼	3 39		28		0 45	1 10	336
3	Tu	Length of night 15h 56m	7 48	10 0	16½	3 52	7 4	11 41	21	4 12		○		1 30	1 55	337
4	W	Day breaks 5h 45m	7 49	9 36	16¼	3 51	8 9	Afternoon	19	4 51		1		2 10	2 30	338
5	Th	Twilight ends 5h 56m	7 51	9 11	16¼	3 51	9 9	1 23	18	5 35		2		2 50	3 10	339
6	F	*Nicholas*	7 52	8 46	16	3 51	10 1	2 13	17¾	6 26		3		3 30	3 45	340
7	S	Fomalhaut souths 5h 45m P.M.	7 53	8 20	15	3 50	10 44	3 2	18¾	7 23		4		4 5	4 20	341
8	S	2d S. in Advent.	7 54	7 54	15¾	3 50	11 21	3 49	21¼	8 22		5		4 40	5 0	342
9	M	[Concept. of B. V. Mary.	7 56	7 27	15¾	3 50	11 51	4 34	23	9 25		6		5 15	5 35	343
10	Tu	Alpha Pegasi souths 5h 41m P.M.	7 57	7 0	15½	3 49	Afternoon	5 19	26¾	10 30		7		5 55	6 15	344
11	W	Alpha Andromedæ souths 6h 40 P.M.	7 58	6 32	15½	3 49	0 39	6 2	30¾	11 34		☽		6 40	7 0	345
12	Th	Alpha Arietis souths 8h 33m P.M.	7 59	6 4	15½	3 49	1 1	6 45	35	Morning.		9		7 30	8 0	346
13	F	*Lucy*	8 0	5 36	15¼	3 49	1 20	7 28	39½	0 40		10		8 35	9 10	347
14	S	Alpha Ceti souths 9h 21m P.M.	8 0	5 7	15¼	3 49	1 43	8 14	44	1 47		11		9 45	10 15	348
15	S	3d S. in Advent	8 1	4 39	15¼	3 49	2 6	9 1	48½	2 57		12		10 50	11 20	349
16	M	Camb. Term ends	8 2	4 9	15¼	3 49	2 33	9 52	52½	4 10		13		11 50	No Tide.	350
17	Tu	Oxford T. ends	8 3	3 40	15¼	3 49	3 6	10 47	56	5 24		14		0 10	0 35	351
18	W	*Ember Week*	8 4	3 11	15	3 50	3 49	11 45	58¼	6 39		15		0 55	1 20	352
19	Th	Day decreased 8h 50m	8 5	2 41	15	3 50	4 36	Morning.	—	7 51		●		1 40	2 5	353
20	F	Pleiades souths 9h 41m P.M.	8 5	2 11	15	3 51	5 37	0 46	59¼	8 57		17		2 30	2 50	354
21	S	*St. Thomas*	8 6	1 41	15	3 51	6 50	1 47	58¾	9 50		18		3 15	3 35	355
22	S	4th S. in Advent	8 6	1 12	15	3 51	8 7	2 48	56¾	10 37		19		3 59	4 25	356
23	M	[Shortest day	8 6	0 42	15	3 51	9 26	3 46	53¼	11 12		20		4 45	5 10	357
24	Tu	Length of day 7h 45m	8 7	0 12	15	3 52	10 44	4 41	49	11 42		21		5 35	6 5	358
25	W	Christmas Day	8 7	After 12 o'clock.	15	3 52	Morning.	5 33	44	Afternoon		☾		6 30	6 55	359
26	Th	*St. Stephen*	8 8	0 48	15¼	3 53	0 2	6 23	39¼	0 30		23		7 25	7 55	360
27	F	*St. John*	8 8	1 18	15¼	3 54	1 17	7 11	34¼	0 52		24		8 30	9 5	361
28	S	*Innocents*	8 9	1 48	15¼	3 55	2 31	7 59	29¾	1 17		25		9 40	10 15	362
29	S	1st S. aft. Chris	8 9	2 17	15¼	3 56	3 43	8 47	25½	2 42		26		10 50	11 25	363
30	M	Aldebaran souths 9h 51m P.M.	8 9	2 46	15¼	3 57	4 53	9 36	22¼	3 12		27		11 55	No Tide.	364
31	Tu	*Silvester*	8 9	3 16	15½	3 58	5 59	10 26	19¾	3 49		28		0 25	0 45	365

DECEMBER.

The Sun is situated south of the Equator, and on the 22nd day attains his extreme south position. From the 23rd day he is moving northward. He passes from the sign Sagittarius to Capricornus, completing the tropical year, on the 22nd day, at 3h. 38m. A.M., having been in the former sign 29 days, 12 hours, and 31 minutes. On the 1st day he is 93,636,000 miles from the Earth; and this distance decreases to 93,412,000 miles by the 31st.

The Moon enters Libra on the 1st; Scorpio on the 2nd; Ophiuchus on the 3rd; Sagittarius on the 5th; Capricornus on the 7th; Aquarius on the 9th; Pisces on the 11th; Cetus on the 12th. She is near Pisces, Cetus, and Aries till the 16th, on which day she enters Taurus; crosses the Milky Way on the 19th; Gemini on the 19th; Cancer on the 21st; Leo on the 22nd; Virgo on the 24th; Libra on the 28th; and Ophiuchus on the 30th.

She is above the horizon when the Sun is below, during the morning hours, from the 17th to the 25th; and, during the evening hours, from the 6th to the 18th.

She reaches an extreme south position on the 5th; crosses the Equator on the 13th, going northward, and reaches an extreme north position on the 20th; then begins to move southward; crosses the Equator on the 26th; and almost reaches an extreme south position on the last day.

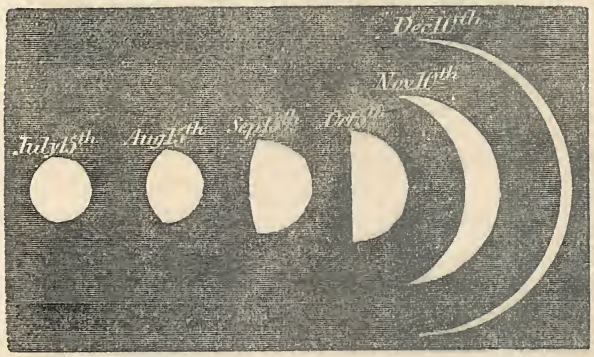
She is near Mars and Mercury on the 3rd; Venus on the 5th; Saturn on the 13th; Uranus on the 14th; Jupiter on the 26th; and Venus on the 31st.

Mercury moves on the boundaries of Scorpio and Ophiuchus to the 7th; and he is in Sagittarius from the 8th to the end of the year.

He sets with the Sun for the first few days; and he is an evening star towards the middle and end of the month. He sets, on the 15th, at 4h. 14m.; and on the last day at 5h. 23m. The Sun sets on these days 25m. and 1h. 25m. respectively before the planet sets. He sets, throughout the month, nearly midway between the S.W. by W. and the S.W. points of the horizon. He moves eastward among the stars during the month; is near the Moon on the 3rd; and Venus on the 15th. His path in the heavens till the 13th of this month is shewn in the diagram in last month; after this time, his rapidity of motion towards the east continues about the same; on the 15th, he reaches his lowest point; and after this time his motion is towards the Equator, or upwards.

Venus is in the constellation Sagittarius till the 22nd; and in that of Scorpio till the 23rd.

TELESCOPIC APPEARANCE OF VENUS FROM JULY TO DECEMBER, 1850.



Scale, 40 seconds of arc to one inch.

She is an evening star at the beginning of the month; and sets, on the 1st, at 5h. 4m. P.M.; and, on the 18th, at the same time as the Sun, about midway between the S.W. by W. and S.W. points of the horizon. She is moving slowly westward among the stars; is near the Moon on the 5th; Mercury on the 12th; Mars on the 20th; and the Moon again on the 31st. She is in inferior conjunction with the Sun on the 16th. Her path in the heavens is shewn in the diagram of last month; and her telescopic appearance at the beginning of the month is shewn in the above engraving: towards the end of the month her appearance will be the same as at the beginning of the month, except that the crescent will be in the opposite direction.

Mars is in the constellation Scorpio till the 18th; on this day he passes into Sagittarius.

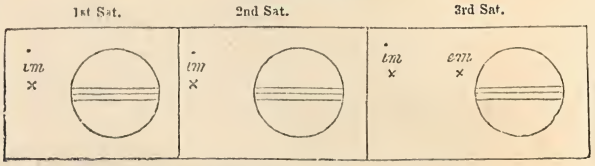
He rises and sets throughout the month very nearly at the same time as the Sun rises and sets; and he is, therefore, unfavourably situated for observation. He is moving eastward among the stars; is near the Moon on the 3rd, and Venus on the 20th. His altitude above the horizon when he souths, on the 1st, is 16°⅜; and on the last day is 14°⅛ nearly.

Jupiter is in the constellation Virgo throughout the month.

He rises, on the 1st, at 2h. 48m. A.M.; and, on the last day, at 0h. 16m. A.M., midway between the E. and the E. by S. points of the horizon. His altitude on souths, on the 1st, is 33°; and, on the last day, is 31°⅜. He moves slowly eastward among the stars, and is near the Moon on the 26th. His path in the heavens is shewn in the diagram in May.

Jupiter's Satellites.—A few eclipses are visible. The relative position of the Satellites to Jupiter at the instant of the eclipse is shewn in the annexed diagram, as viewed through an inverting telescope.

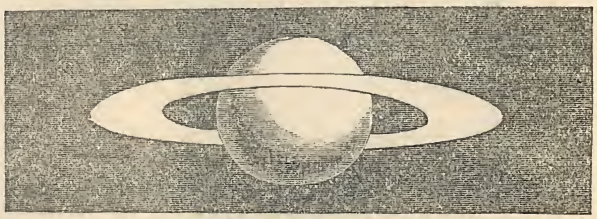
RELATIVE POSITION OF EACH SATELLITE TO JUPITER AT THE TIME OF IMMERSION OR EMERSION.



Saturn is in the constellation Cetus throughout the month.

He is an evening star; and sets, on the 1st, at 2h. 40m. A.M.; and on the last day at 42m. after midnight. He souths at an altitude of 41°¾ nearly. He is almost stationary among the stars, and is near the Moon on the 13th. His position in the heavens is shewn in the diagram in September. The ring has opened a good deal during the year; and the telescopic appearance of the planet is shewn in the annexed diagram.

TELESCOPIC APPEARANCE OF SATURN IN DECEMBER, 1850.



Scale, 20 seconds of arc to one inch.

Uranus is in the constellation Pisces throughout the month.

He sets, on the 1st, at 3h. 58m. A.M.; and, on the 31st, at 2h. 1m. A.M. On the 15th, he souths at 8h. 3m. P.M., at an altitude of 48°¾. He is near the Moon on the 14th.

Neptune sets, on the 1st, at 10h. 54m. P.M.; and, on the last day, a 8h. 58m. P.M.

ON THE APPARENT MOTIONS OF THE SUN, MOON, AND PLANETS

(*Concluded from page* 45.)

After a few days more, their apparent motion is in the opposite direction, or from east to west. In this case the motion is said to be retrograde; this movement is slow at first, but is continually increasing in velocity till the planet (Mercury or Venus) is in inferior conjunction; or, in the case of the superior planets, in opposition: it then gradually decreases, till the planet becomes stationary a second time; after which it begins to move from west to east, or to have direct motion, as before, and proceeds to pass through another series of similar motions. The retrograde motion is not of long continuance.

The general phenomena presented by the motions of the planets may be briefly stated to be as follows:—That, through the greater parts of their orbits, they move from west to east—that is, from the time of reaching their western elongation or quadratures, to the time of reaching their eastern extremes; having been in conjunction with the Sun in the meantime, becoming stationary, then moving from east to west, and forming at every succeeding opposition a kind of loop. (See the various diagrams.)

TIMES OF THE PLANETS SOUTHING, OR PASSING THE MERIDIAN.

Days of the Month	Mercury. Morning.	Venus. Afternoon	Mars. Morning.	Jupiter. Morning.	Saturn. Afternoon	Neptune. Afternoon
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	11 56	1 26	11 47	8 24	8 16	5 46
6	After.	1 0	11 43	8 7	7 56	5 26
11	0 25	0 30	11 39	7 50	7 36	5 6
16	0 40	Morn.	11 35	7 34	7 16	4 44
21	0 55	11 25	11 31	7 16	6 56	4 27
26	1 9	10 56	11 28	6 59	6 37	4 7
31	1 21	10 29	11 25	6 42	6 17	3 48

JUPITER'S SATELLITES.

Eclipses of 1st Sat. Immersion.			3rd Sat. Im. I.		Emer. E.	
D.	H.	M.	D.	H.	M.	
16	4	52 A.M.	21	4	38	A.M. E.
23	6	45 A.M.	28	5	55	A.M. I.
32	3	7 A.M.				
2nd Sat. Immersion.						
17	5	5 A.M.				

OCCULTATIONS OF STARS BY THE MOON.

Names of the Stars.	Magnitude.	Times of disappearance & re-appearance of the Star.		At which limb of the Moon.	Between what Latitudes visible.
		D. H. M.			
A Star	4	15 8 20	P.M.	Dark	9° S. &
		15 9 10	P.M.	Bright	66° N.
f Tauri	5	16 3 54	P.M.	Dark	28° N. &
		16 4 48	P.M.	Bright	90° N.
75 Tauri	6	17 4 33	P.M.	Dark	25° N. &
		17 5 28	P.M.	Bright	90° N.
Chi 2 Orionis	6	19 5 25	A.M.	Bright	3° N. &
		19 5 51	A.M.	Bright	64° N.

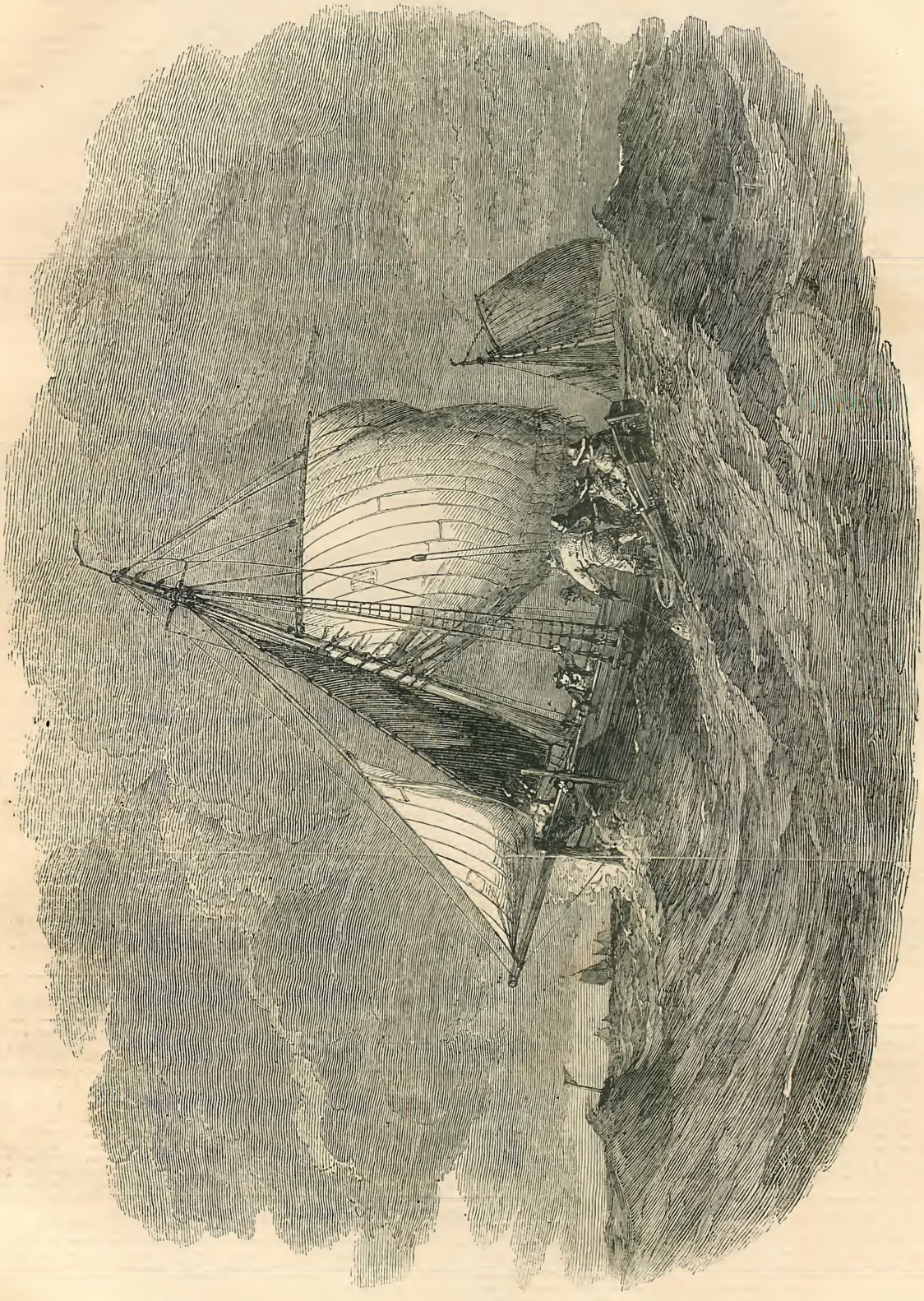
TIMES OF CHANGES OF THE MOON,

And when she is at her greatest distance (Apogee), or at her least distance (Perigee), from the Earth in each Lunation.

New Moon ..	3D.	5H.	16M.	P.M.
First Quarter	11	8	37	P.M.
Full Moon ..	19	5	3	A.M.
Last Quarter	25	9	24	P.M.
Apogee	9	11		A.M.
Perigee	21	6		A.M.

RIGHT ASCENSIONS AND DECLINATIONS OF THE PLANETS.

Days of the Month.	Mercury. Right Ascension	Mercury. Declination South.	Venus. Right Ascension	Venus. Declination South.	Mars. Right Ascension	Mars. Declination South.	Jupiter. Right Ascension	Jupiter. Declination South.	Saturn. Right Ascension	Saturn. Declination North.	Uranus. Right Ascension	Uranus. Declination North.	Neptune. Right Ascension	Neptune. Declination South.
	H. M.	° ′	H. M.	° ′	H. M.	° ′	H. M.	° ′	H. M.	° ′	H. M.	° ′	H. M.	° ′
1	16h. 36m	23° 6′	18h. 7m	25° 38′	16h. 27m	22° 6′	13h. 3m	5° 27′	0h. 57m	3° 13′	1h. 41m	9° 51′	22h. 26m	10° 39′
6	17 10	24 27	18 0	24 34	16 42	22 41	13 6	5 45	0 57	3 12	1 40	9 48	22 26	10 38
11	17 44	25 16	17 49	23 19	16 58	23 10	13 9	6 2	0 56	3 11	1 40	9 46	22 27	10 37
16	18 19	25 30	17 36	21 56	17 14	23 34	13 12	6 18	0 56	3 11	1 39	9 44	22 27	10 35
21	18 54	25 6	17 24	20 32	17 30	23 51	13 15	6 33	0 56	3 13	1 39	9 43	22 27	10 33
26	19 28	24 4	17 14	19 19	17 46	24 2	13 17	6 46	0 56	3 16	1 39	9 42	22 28	10 30



DECEMBER.—COD FISHING.

NOTES ON NATURAL HISTORY.—DECEMBER.

In December, the robin redbreast and the wren are almost the only birds that are found cheerfully hopping about near dwelling-houses. The robin, in fact, becomes more familiar at this season; and, as Thomson beautifully expresses it,—

> The redbreast, sacred to the household gods,
> Wisely regardful of th' embroiling sky,
> In joyless fields and thorny thickets leaves
> His shivering mates, and pays to trusted man
> His annual visit. Half afraid, he first
> Against the window beats; then brisk alights
> On the warm hearth; then, hopping o'er the floor,
> Eyes all the smiling family askance,
> And pecks, and starts, and wonders where he is:
> Till, more familiar grown, the table crums
> Attract his slender beak.

In Italy, Mr. Waterton informs us, the robin redbreast is used as food; and he says, in the bird-market near the Rotunda, at Rome, he has counted more than fifty robin redbreasts lying dead on one stall.

The fearful cry of the owl sounds more alarming in winter than at any other season; and the form of the barn owl flitting through the leafless trees has a more striking and ghost-like appearance in winter than it ever can have in summer. "The characters and appearance of owls," says Mr. Yarrell, "are so singular and so peculiar, that, once having seen them, they are not readily forgotten. They have but little external beauty of form. The head is large, the expression grotesque, and the body bulky in appearance, though the plumage is soft and downy. Unlike the falcons, which hunt for their food by day, the owls seek their prey during the twilight of morning and evening, and probably during the greater part of the night, if the state of the moon or the atmosphere affords sufficient light for the purpose. From this habit of flying by night, the singular appearance of the bird produced by the arrangement of the feathers of the face, forming a broad circular disk, a peculiar hollow tone of voice, unlike that of any other bird, and the additional circumstance of most of the species selecting ivy-covered ruins of sacred edifices as places of resort, from the solitude and protection the character of such remains afford, owls have been considered by the superstitious as birds of darkness and ill-omen, and by some even as messengers of death." The little Italian owl, or *civetta*, is much prized, Mr. Waterton tells us, "by the gardeners of Italy, for its uncommon ability in destroying insects, snails, slugs, reptiles, and mice. There is scarcely an out-house in the gardens and vineyards of that country which is not tenanted by the *civetta*. It is often brought up tame from the nest; and in the month of September is sold for a dollar to sportsmen, who take it with them in their excursions through the country, to look for larks and other small birds. Perched on the top of a pole, it attracts their notice and draws them within the fatal range of gunshot by its most singular gestures; for, standing bolt upright, it curtsies incessantly, with its head somewhat inclined forwards, whilst it keeps its eyes fixed on the approaching object. This odd movement is peculiar to the *civetta* alone, and by it the birds of the neighbourhood are decoyed to their destruction. Hence its value to the ranging sportsman. Often and anon as the inhabitants of Rome pass through the bird-market at the Pantheon, they stop and look, and laugh at this pretty little captive owl, whilst it is performing its ridiculous gesticulations." The scops-eared owl is very nearly allied to this species, and, though it is most abundant in Italy, it is occasionally to be seen in Great Britain; and on the shores and islands of the Mediterranean it is very abundant; and Mr. Spence, the well-known entomologist, has thus recorded its summer habits in the *Magazine of Natural History*:—"This owl, which in summer is very common in Italy, is remarkable for the constancy and regularity with which it utters its peculiar note or cry. It does not merely 'to the moon complain' occasionally, but keeps repeating its plaintive and monotonous cry of '*Kew, kew*' (whence its Florentine name of *Chiù*, pronounced almost exactly like the English letter *Q*), in the regular intervals of about two seconds, the livelong night; and till one is used to it nothing can well be more wearisome. Towards the end of April, 1830, one of these owls established itself in the large Jardin Anglais, behind the house where we resided at Florence; and, until our departure for Switzerland, in the beginning of June, I recollect but one or two instances in which it was not constanty to be heard, as if in spite to the nightingales which abounded there, from nightfall to midnight (and probably much later), whenever I chanced to be in the back part of the house, or took our friends to listen to it, and always with precisely the same unwearied cry, and the intervals between each as regular as the ticking of a pen dulum."

SCOPS-EARED OWL.

At this gloomy season of the year every flower is valuable; but the Christmas rose, which generally appears in flower about this time, is valuable not only from the absence of other flowers, but for its own intrinsic merits. It is a large, handsome, cup-shaped flower, looking like a single rose, and being either white or a very pale pink; and though, in the open air, the delicate texture of its flowers is often injured by the frost, or melting snow which so frequently covers the ground at the dreary season when it appears, yet, when grown in a sheltered place, or when the weather chances to be mild, it is as ornamental as any of the flowers of summer. It is a species of hellebore, and its botanic name is *Helléborus niger* (or the black hellebore), from the black skin which covers its fleshy underground stem, or root, as it is commonly called, though there are attached to this fleshy substance abundance of the real or fibrous roots. The plant is used in medicine, but it is poisonous when taken to excess; and, in fact, its very name of hellebore is taken from two Greek words, signifying deadly food. There are several kinds of hellebore, but the Christmas rose is by far the most ornamental.

CHRISTMAS ROSE.

The fragrant coltsfoot (*Tussilágo frágrans*) is another plant which flowers about Christmas; and it is not only ornamental, but very fragrant. All the kinds of coltsfoot are considered efficacious in colds and coughs; and, in fact, the Latin name of the genus is derived from *tussis*, a cough.

Among the few other plants in flower at this season may be mentioned the curious variety of hawthorn called the Glastonbury thorn, which is said always to flower exactly on Christmas Day. Of course, this is not the ease; but it is a fact that the plant blossoms again in December, though it has ripe fruit on it from its previous blossoming at the ordinary season in May. The legend is, that, in the ancient times, Glastonbury was situated on an island called Avalon; the waters that surrounded it, and which consisted of a lake communicating with the sea, being now dried up, though where the lake formerly was is still marshy ground. Joseph of Arimathea is said to have come to Britain with his disciples, to preach the Gospel, in the year 36; and he having landed on the isle of Avalon, struck his stick into the ground, which immediately took root, budded, and blossomed, being on the Christmas Day; and, since that time, the plant has always budded and blossomed on Christmas Day. The Glastonbury thorns, which are now common in every part of England, are all taken from an original stock, still existing within the ruins of Glastonbury Abbey; but it is said that there is another in the neighbourhood, which is much older than the one growing in the ruins, and which blossoms about the same time.

In the New Forest there is an oak which sends forth its leaf-buds about the middle of December, and which, on Christmas Day, has frequently several leaves expanded. They do not, however, long remain, as the country people generally assemble on the Christmas morning and strip the tree of every leaf they can find. The tree is called the Cadenham Oak, and it is said by some to be the identical tree against which the arrow of Tyrrel glanced when it killed William Rufus; as, in the account given by Camden of the accident, he expressly mentions the early vegetation of the tree which was the occasion of the accident. According to other authors, however, it appears that there is another tree in the Forest which vegetates at the same time as the Cadenham Oak, and which is close to the monument of Rufus. There was, formerly, another very remarkable tree in the New Forest, from the root of which strange noises, like fearful groans, used to issue in the month of December, particularly when the weather was clear and frosty. The tree was a young and vigorous elm; and the groaning, which was never heard but in the depth of winter, was heard by thousands. It was observed, however, that the tree did not groan when the weather was wet, but only when it was clear and frosty. At length the owner of the tree, a gentleman of the name of Forbes, after trying several experiments, bored a hole in its trunk. "After this it never groaned. It was then rooted up, with a further view to make a discovery; but still nothing appeared which led to any investigation of the cause. It was, however, universally believed that there was no trick in the affair, but that some natural cause really existed, though never understood."

Almost all the insects which live through the winter are in a torpid state at this season, and most of the moths and butterflies are dead, having left their eggs secured in various ways, so that they may be enabled to bear the cold of winter, and be ready to be hatched in the spring. Thus, the eggs of the lackey-moth, to use the words of Messrs. Kirby and Spence, "are packed as closely as possible to each other, and the interstices are filled up with a tenacious gum, which soon hardens the whole into a solid mass, almost capable of resisting a penknife." The female of the gipsy-moth also crowds her eggs together as closely as she possibly can, and when she has formed them into an oval mass, she covers them with a warm coating of hairs plucked from her own body, which she makes so thick, and fixes on so firmly, as to render the covering equally impervious to cold and wet. Even the *Aphis* coats her eggs over so as to make them appear perfectly black; and the beetles generally bury theirs to a considerable depth in the ground, instinct teaching them that the frost, which destroys everything exposed to the atmospheric air, never penetrates more than a few inches into the ground. In some few cases moths hybernate, like beetles, in a perfect state, and the December Moth is found occasionally sticking, apparently lifeless, against the trunks of trees. The Herald Moth is also occasionally seen at this season, and it is so torpid that it will suffer itself to be taken in the hand without making any effort to escape. Even when a finger is put near it, it only moves its head and antennæ a little, without attempting to fly away. A moth of this species was observed by the Rev. Leonard Jenyns to remain in a torpid state upwards of seven month. The most remarkable insect, however, seen at this season, is the one known in the south of Scotland by the name of the Devil's Butterfly; and which, in various parts of England, is called the Witch's Butterfly, as it may be seen on the wing on fine sunshiny days during the whole of the winter. The true name of this butterfly is the small tortoise-shell (*Vanéssa úrticæ*); and its caterpillars, which feed on the nettle, are nearly black, with four bright yellow stripes, two along the back and one on each side, the whole body being covered with fine branched spines. The pupa of this caterpillar is very curious, looking like a lady with an old-fashioned hood, and being always suspended by a thread. There appear to be at least two broods of this insect every year—one being hatched in June, and the other in the latter end of October. It is very common in the south of Europe, and particularly in Italy.

SMALL TORTOISE-SHELL BUTTERFLY.

The common house-fly is subject to rather a singular disease at this season; and flies are often found sticking to the leaves of ivy and other evergreens—the flies, though they appear to be alive, being quite dead, and adhering to the leaf by a kind of cottony mildew, which is, in fact, a peculiar sort of fungus. The Rev. L. Jenyns, mentioning this singular fact, adds, that it seems owing to the chill and dampness of an autumnal night coming on suddenly, as at this season the temperature of the air at sunset, especially if the sky be clear, falls rapidly. The Rev. M. J. Berkeley mentions that this fungus, no doubt, attacks the fly while living, though it is not fully developed till after death. The reason why it prevails in autumn, he adds, is that the dampness of the air at that season is favourable to the growth of all kinds of mould, and that the suddenness with which flies appear to be attacked with it is merely the rapid growth of the fungus, from the state of the atmosphere. Gold fish are frequently attacked at the beginning of winter with a white downy matter, similar to that found on flies, and which generally proves equally fatal. The nests of wasps may be sought for at this season and destroyed, as wasps are frequently found in them in a torpid state from the cold, and nearly every wasp that survives the winter will form a nest the following summer; the economy of wasps being different from that of bees, and each old female wasp forming a new colony of her own.

A TABLE, SHOWING THE TIMES OF SUN-RISING AND SUN-SETTING, AND THE LENGTH OF THE DAY, AT ALL PLACES IN ENGLAND, SCOTLAND, IRELAND, AND WALES.

Month and Day.	Lizard Point, Falmouth, Penzance, Truro.			Dartmouth, Plymouth, Dartmoor, Launceston, Isle of Wight, Poole, Dorchester, Sidmouth, Weymouth, Exeter, Totness.			Dover, Southampton, Folkstone, Winchester. Brighton, Chichester, Hastings, Hythe, Tunbridge Wells, Tilford, Salisbury, Shaftesbury, Taunton, Bridgewater, Barnstaple.			Ramsgate, Margate, Canterbury, Chelmsford, Maidstone, Rochester, Romford, London, Croydon, Sheerness, Gravesend, Richmond, Windsor, Wallingford, Eaton, Oxford, Reading, Maidenhead, Marlborough, Bath, Bristol, Newport, Cardiff, Pembroke, Kinsale, Pembroke.			Harwich, Northampton, Worcester, Colchester, Ipswich, Buckingham, Gloucester, Cambridge, Royston, Worcester, Bedford, Hereford, Cork, Cardigan, Dungarvon, Waterford, Killarney, Brecon, Cheltenham, Valentia.			Lowestoffe, Yarmouth, Norwich, Huntingdon, Ely, Peterborough, Birmingham, Shrewsbury, Kidderminster, Litchfield, Coventry, Leicester, Montgomery, Wexford, Aberystwith, Clonmel, Enniscorthy, Kilkenny, Cashel, Limerick.			Cromer, Wells, Lynn, Lincoln, Nottingham, Stafford, Chester, Derby, Caernarvon, Bin, Denbigh, Wicklow, Athy, Clare.			Grimsby, Gainsborough, Hull, Sheffield, Leeds, Doncaster, Stockport, Huddersfield, Wakefield, Manchester, Live pool, Dublin, Athlone, Tuam, Beaumaris, Galway.			Flamborough, York, Kirkby Lonsdale, Knaresbro', Lancaster, Preston, S. of Isle of Man, Newry, Dundalk, Cavan, Castlebar.		
	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.
	Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.	
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
January 1	8 1	4 7	8 6	8 3	4 5	8 2	8 6	2	7 56	8 8	4 0	7 52	8 11	3 57	7 46	8 14	3 54	7 40	8 17	3 51	7 34	8 20	3 49	7 29	8 22	3 46	7 24
11	7 58	4 18	8 20	8 0	4 16	8 15	8 3	4 13	8 10	8 5	4 11	8 6	8 7	4 9	8 2	8 9	4 7	7 58	8 12	4 5	7 53	8 14	4 3	7 49	8 17	4 0	7 43
21	7 51	4 33	8 42	7 53	4 31	8 38	7 55	4 29	8 34	7 56	4 28	8 32	7 58	4 26	8 28	8 0	4 24	8 24	8 2	4 22	8 20	8 5	4 20	8 15	8 7	4 17	8 10
February 1	7 37	4 51	9 14	7 39	4 49	8 11	7 40	4 48	9 8	7 42	4 47	9 5	7 43	4 45	9 2	7 45	4 43	8 58	7 47	4 41	8 54	7 49	4 39	8 50	7 51	4 37	8 46
11	7 20	5 9	9 49	7 21	5 7	9 46	7 22	5 6	9 44	7 23	5 4	9 41	7 25	5 3	9 38	7 26	5 2	9 36	7 27	5 1	9 34	7 28	5 0	9 32	7 30	4 58	9 28
21	7 2	5 26	10 24	7 3	5 25	10 22	7 4	5 24	10 20	7 5	5 23	10 18	7 6	5 22	10 16	7 6	5 22	10 16	7 7	5 21	10 14	7 8	5 20	10 14	7 9	5 19	10 10
March .. 1	6 46	5 40	10 54	6 46	5 40	10 53	6 47	5 39	19 52	6 48	5 40	10 52	6 49	5 37	10 48	6 49	5 37	10 48	6 50	5 36	10 46	6 50	5 36	10 46	6 51	5 35	10 44
11	6 25	5 55	11 30	6 25	5 55	11 30	6 25	5 55	11 30	6 25	5 55	11 30	6 26	5 54	11 28	6 26	5 54	11 28	6 27	5 53	11 26	6 27	5 53	11 26	6 27	5 53	11 26
21	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10
April .. 1	5 39	6 29	12 50	5 39	6 29	12 50	5 39	6 29	12 50	5 38	6 29	12 51	5 38	6 30	12 52	5 38	6 30	12 52	5 37	6 31	12 54	5 37	6 31	12 54	5 36	6 32	12 56
11	5 18	6 44	13 26	5 18	6 44	13 27	5 17	6 45	13 28	5 16	6 46	13 30	5 15	6 47	13 32	5 14	6 48	13 34	5 13	6 49	13 36	5 12	6 50	13 38	5 11	6 51	13 40
21	4 58	7 0	14 2	4 57	7 1	14 4	4 56	7 2	14 6	4 55	7 4	14 9	4 53	7 5	14 12	4 52	7 6	14 14	4 51	7 7	14 16	4 49	7 8	14 29	4 48	7 10	14 22
May .. 1	4 39	7 15	14 36	4 40	7 17	14 39	4 36	7 18	14 42	4 35	7 19	14 45	4 33	7 21	14 48	4 32	7 23	14 51	4 30	7 24	14 54	4 28	7 26	14 58	4 26	7 28	15 2
11	4 22	7 30	15 8	4 20	7 32	15 11	4 19	7 33	15 14	4 17	7 35	15 18	4 15	7 37	15 22	4 13	7 39	15 26	4 11	7 41	15 30	4 9	7 44	15 35	4 6	7 46	15 40
21	4 8	7 44	15 36	4 6	7 46	15 40	4 4	7 48	15 44	4 2	7 50	15 48	4 0	7 52	15 52	3 58	7 55	15 57	3 55	7 57	16 2	3 53	8 0	16 7	3 50	8 2	16 12
June .. 1	3 58	7 56	15 58	3 55	7 58	16 4	3 53	8 1	16 8	3 51	8 4	16 13	3 48	8 6	16 18	3 46	8 9	16 23	3 43	8 11	16 28	3 40	8 14	16 34	3 37	8 17	16 40
11	3 52	8 6	16 14	3 50	8 9	16 19	3 47	8 11	16 24	3 45	8 14	16 29	3 42	8 16	16 34	3 39	8 18	16 39	3 37	8 21	16 44	3 34	8 24	16 50	3 31	8 27	16 56
21	3 52	8 10	16 18	3 50	8 13	16 23	3 47	8 15	16 28	3 44	8 18	16 34	3 41	8 21	16 40	3 38	8 24	16 46	3 35	8 27	16 52	3 32	8 30	16 58	3 29	8 33	17 4
July .. 1	3 56	8 10	16 14	3 53	8 12	16 19	3 51	8 15	16 24	3 49	8 18	16 29	3 46	8 20	16 34	3 43	8 23	16 40	3 40	8 26	16 46	3 37	8 29	16 52	3 34	8 32	16 58
11	4 5	8 5	16 0	4 3	8 8	16 5	4 0	8 10	16 10	3 58	8 13	16 15	3 55	8 15	16 20	3 53	8 17	16 24	3 50	8 20	16 30	3 47	8 23	16 36	3 44	8 26	16 42
21	4 16	7 56	15 40	4 14	7 58	15 44	4 12	8 0	15 48	4 10	8 2	15 52	4 8	8 4	15 56	4 5	8 7	16 2	4 2	8 10	16 8	4 0	8 13	16 13	3 57	8 15	16 18
August 1	4 31	7 41	15 10	4 29	7 43	15 13	4 28	7 44	15 16	4 26	7 46	15 20	4 24	7 48	15 24	4 22	7 50	15 28	4 20	7 52	15 32	4 18	7 55	15 37	4 15	7 57	15 42
11	4 45	7 25	14 40	4 44	7 26	14 43	4 42	7 28	14 46	4 40	7 30	14 50	4 39	7 31	14 52	4 37	7 33	14 56	4 35	7 35	15 0	4 33	7 37	15 4	4 32	7 38	15 6
21	5 0	7 6	14 6	4 59	7 7	14 8	4 58	7 8	14 10	4 57	7 9	14 12	4 55	7 11	14 16	4 54	7 12	14 18	4 52	7 14	14 22	4 51	7 15	14 24	4 50	7 16	14 26
Sept. .. 1	5 17	6 43	13 26	5 15	6 45	13 29	5 14	6 46	13 32	5 13	6 47	13 34	5 12	6 48	13 36	5 11	6 49	13 38	5 10	6 50	13 40	5 10	6 50	13 40	5 9	6 50	13 41
11	5 33	6 21	12 48	5 33	6 21	12 49	5 32	6 22	12 50	5 32	6 22	12 50	5 31	6 23	12 52	5 30	6 24	12 54	5 29	6 25	12 56	5 29	6 25	12 56	5 28	6 26	12 58
21	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14
October 1	6 2	5 38	11 36	6 2	5 38	11 36	6 2	5 38	11 36	6 2	5 38	11 36	6 3	5 37	11 34	6 3	5 37	11 34	6 3	5 37	11 34	6 3	5 37	11 34	6 4	5 36	11 34
11	6 17	5 17	11 0	6 17	5 17	10 59	6 18	5 16	10 58	6 19	5 15	10 56	6 20	5 14	10 54	6 20	5 14	10 54	6 21	5 13	10 52	6 21	5 13	10 52	6 22	5 12	10 50
21	6 34	4 56	10 22	6 35	4 55	10 20	6 36	4 54	10 18	6 37	4 53	10 16	6 38	4 52	10 14	6 39	4 52	10 13	6 40	4 51	10 11	6 41	4 50	10 9	6 42	4 49	10 7
Novem. 1	6 52	4 36	9 44	6 54	4 35	9 41	6 55	4 33	9 38	6 56	4 32	9 36	6 57	4 31	9 34	6 59	4 29	9 30	7 0	4 28	9 28	7 2	4 27	9 25	7 3	4 25	9 22
11	7 9	4 19	9 10	7 10	4 18	9 7	7 12	4 16	9 4	7 14	4 14	9 0	7 15	4 13	8 58	7 17	4 11	8 54	7 19	4 9	8 50	7 21	4 7	8 46	7 23	4 5	8 42
21	7 25	4 7	8 42	7 27	4 5	8 39	7 29	4 3	8 34	7 31	4 2	8 31	7 33	3 59	8 26	7 35	3 58	8 23	7 36	3 56	8 20	7 38	3 53	8 15	7 41	3 51	8 10
Decem. 1	7 38	4 0	8 22	7 40	3 58	8 17	7 43	3 55	8 12	7 45	3 53	8 8	7 47	3 51	8 4	7 49	3 48	7 59	7 52	3 46	7 54	7 54	3 44	7 50	7 57	3 41	7 44
11	7 50	3 56	8 6	7 52	3 54	8 2	7 55	3 51	7 56	7 57	3 48	7 51	8 0	3 46	7 46	8 3	3 45	7 40	8 6	3 40	7 34	8 8	3 37	7 29	8 11	3 35	7 24
21	7 58	3 58	8 0	8 0	3 55	7 55	8 3	3 53	7 50	8 6	3 50	7 44	8 8	3 48	7 40	8 11	3 45	7 34	8 14	3 42	7 28	8 17	3 39	7 22	8 20	3 36	7 16
31	8 1	4 5	8 4	8 3	4 3	8 0	8 6	4 0	7 54	8 9	3 57	7 49	8 11	3 55	7 44	8 14	3 52	7 38	8 17	3 49	7 32	8 20	3 46	7 26	8 22	3 44	7 22

The times of Sun-rising and Sun-setting, and the Length of the Day, at all those Towns and Villages which are not mentioned at the head of this Table, will be the same as those of that Town whose name is mentioned, and which is situated the nearest to them. The Numbers in this Table will answer for many Years.

A TABLE, SHOWING THE TIMES OF SUN-RISING AND SUN-SETTING, AND THE LENGTH OF THE DAY, AT ALL PLACES IN ENGLAND, SCOTLAND, IRELAND, AND WALES—(*Continued*).

Month and Day.	Scarbro', Whitehaven, Stockton, Appleby, N. of Isle of Man, Whitby, Keswick, Penrith, Belfast, Clogher, Sligo, Ballyshannon.			Sunderland, Shields, Newcastle, Carlisle, Annan, Dumfries, Wigtown, Kirkudbright, Carrickfergus, Antrim, Londonderry.			Alnwick, Rothbury, Jedburgh, Ayr, Selkirk, Irvine.			Berwick, Haddington, Edinburgh, Linlithgow, Glasgow, Stirling, Dunbar, Leith, Greenock.			Forfar, Dundee, Perth, Comrie, Ardchattan.			Aberdeen, Inverbervie, Ura, Kincardine, Keil, Laggan.			Peterhead, Inverness, Banff, Cromarty, Elgin, Applecross.			Dornock, Portenleck, Taim, Dunrobin, Dunclaim.			Wick, Thurso.			Orkney Islands.		
	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.	Sun.		Length of Day.
	Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.		Rises.	Sets.	
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
January 1	8 25	3 43	7 18	8 28	3 40	7 12	8 31	3 36	7 5	8 35	3 33	6 58	8 38	3 30	6 52	8 41	3 27	6 46	8 45	3 23	6 38	8 49	3 19	6 30	8 53	3 15	6 22	8 58	3 10	6 12
11	8 19	3 57	7 38	8 22	3 54	7 32	8 25	3 51	7 26	8 28	3 48	7 20	8 32	3 45	7 13	8 35	3 41	7 6	8 38	3 38	7 0	8 41	3 35	6 54	8 45	3 31	6 46	8 48	3 28	6 40
21	8 10	4 14	8 4	8 13	4 11	7 58	8 15	4 8	7 53	8 18	4 6	7 48	8 20	4 3	7 43	8 23	4 1	7 38	8 26	3 58	7 32	8 29	3 55	7 26	8 32	3 52	7 20	8 35	3 49	7 14
February 1	7 52	4 35	8 43	7 54	4 34	8 40	7 56	4 32	8 36	7 58	4 30	8 32	8 1	4 27	8 26	8 3	4 25	8 22	8 5	4 23	8 18	8 7	4 21	8 14	8 9	4 18	8 9	8 12	4 16	8 4
11	7 32	4 57	9 25	7 33	4 55	9 22	7 35	4 53	9 18	7 37	4 51	9 14	7 39	4 50	9 11	7 40	4 48	9 8	7 42	4 46	9 4	7 44	4 44	9 0	7 46	4 42	8 56	7 47	4 41	8 54
21	7 11	5 18	10 7	7 12	5 16	10 4	7 13	5 15	10 2	7 14	5 14	10 0	7 15	5 12	9 57	7 17	5 11	9 54	7 19	5 9	9 50	7 20	5 8	9 48	7 21	5 7	9 46	7 22	5 6	9 44
March.. 1	6 52	5 34	10 42	6 53	5 33	10 40	6 53	5 33	10 40	6 54	5 32	10 38	6 55	5 31	10 36	6 56	5 30	10 34	6 57	5 29	10 32	6 58	5 28	10 30	6 59	5 27	10 28	7 0	5 26	10 26
11	6 27	5 53	11 26	6 28	5 52	11 24	6 28	5 52	11 24	6 28	5 52	11 24	6 29	5 52	11 23	6 29	5 51	11 22	6 29	5 51	11 22	6 30	5 50	11 20	6 30	5 50	11 20	6 31	5 49	11 18
21	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10	6 2	6 12	12 10
April .. 1	5 36	6 32	12 56	5 35	6 33	12 58	5 34	6 34	13 0	5 33	6 35	13 2	5 33	6 35	13 2	5 32	6 36	13 4	5 32	6 36	13 4	5 31	6 37	13 6	5 30	6 38	13 8	5 29	6 39	13 10
11	5 10	6 52	13 42	5 9	6 53	13 44	5 8	6 54	13 46	5 7	6 55	13 48	5 6	6 56	13 50	5 5	6 57	13 52	5 4	6 58	13 54	5 3	6 59	13 56	5 2	7 0	13 58	5 1	7 1	14 0
21	4 47	7 12	14 25	4 45	7 13	14 28	4 43	7 15	14 32	4 42	7 16	14 34	4 40	7 18	14 38	4 39	7 19	14 40	4 37	7 20	14 43	4 36	7 22	14 46	4 35	7 23	14 48	4 33	7 25	14 52
May .. 1	4 25	7 29	15 4	4 23	7 31	15 8	4 20	7 33	15 13	4 18	7 36	15 18	4 16	7 37	15 21	4 15	7 39	15 24	4 13	7 41	15 28	4 11	7 43	15 32	4 8	7 45	15 37	4 6	7 48	15 42
11	4 4	7 48	15 44	4 2	7 50	15 48	4 0	7 53	15 53	3 57	7 55	15 58	3 54	7 58	16 4	3 52	8 0	16 8	3 49	8 3	16 14	3 46	8 5	16 19	3 44	8 8	16 24	3 41	8 11	16 30
21	3 47	8 5	16 17	3 45	8 7	16 22	3 43	8 10	16 27	3 40	8 12	16 32	3 37	8 15	16 38	3 34	8 18	16 44	3 31	8 22	16 51	3 27	8 25	16 58	3 23	8 29	17 6	3 19	8 33	17 14
June .. 1	3 34	8 20	16 46	3 31	8 23	16 52	3 28	8 26	16 58	3 25	8 29	17 2	3 22	8 33	17 11	3 18	8 36	17 18	3 14	8 40	17 26	3 10	8 44	17 34	3 6	8 48	17 42	3 2	8 52	17 50
11	3 28	8 30	17 2	3 24	8 34	17 10	3 20	8 37	17 17	3 17	8 41	17 24	3 13	8 45	17 32	3 9	8 49	17 40	3 5	8 53	17 48	3 0	8 58	17 58	2 56	9 2	18 6	2 52	9 6	18 14
21	3 26	8 37	17 11	3 22	8 40	17 18	3 18	8 44	17 26	3 15	8 47	17 32	3 11	8 51	17 40	3 7	8 55	17 48	3 2	8 59	17 57	2 58	9 4	18 6	2 53	9 8	18 15	2 49	9 13	18 24
July .. 1	3 31	8 35	17 4	3 28	8 38	17 10	3 24	8 41	17 17	3 21	8 45	17 24	3 17	8 49	17 32	3 13	8 53	17 40	3 9	8 57	17 48	3 5	9 1	17 56	3 0	9 4	18 4	2 56	9 10	18 14
11	3 41	8 29	16 48	3 38	8 32	16 54	3 34	8 36	17 2	3 31	8 39	17 8	3 28	8 42	17 14	3 25	8 45	17 20	3 21	8 49	17 28	3 17	8 53	17 36	3 13	8 57	17 44	3 9	9 1	17 52
21	3 54	8 18	16 24	3 52	8 20	16 28	3 49	8 23	16 34	3 46	8 26	16 40	3 44	8 28	16 44	3 41	8 31	16 50	3 38	8 34	16 56	3 34	8 38	17 4	3 30	8 42	17 12	3 26	8 46	17 20
August 1	4 12	7 59	15 48	4 10	8 2	15 52	4 8	8 4	15 56	4 5	8 7	16 2	4 3	8 9	16 6	4 1	8 11	16 10	3 58	8 14	16 16	3 56	8 16	16 20	3 53	8 19	16 26	3 50	8 22	16 32
11	4 30	7 39	15 9	4 29	7 41	15 12	4 27	7 44	15 17	4 24	7 46	15 22	4 22	7 48	15 26	4 21	7 49	15 28	4 18	7 52	15 34	4 16	7 54	15 38	4 14	7 57	15 43	4 11	7 59	15 48
21	4 48	7 18	14 30	4 47	7 19	14 32	4 45	7 20	14 35	4 44	7 22	14 38	4 43	7 23	14 40	4 41	7 25	14 44	4 40	7 26	14 46	4 38	7 28	14 50	4 36	7 30	14 54	4 34	7 32	14 58
Sept. .. 1	5 9	6 51	13 42	5 8	6 52	13 44	5 7	6 53	13 46	5 6	6 54	13 48	5 5	6 55	13 50	5 4	6 56	13 52	5 3	6 57	13 54	5 2	6 58	13 56	5 1	6 59	13 58	5 0	7 0	14 0
11	5 28	6 26	12 58	5 27	6 27	13 0	5 27	6 27	13 0	5 26	6 28	13 2	5 26	6 28	13 2	5 25	6 29	13 4	5 25	6 29	13 4	5 24	6 30	13 6	5 23	6 31	13 8	5 22	6 32	13 10
21	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14	5 46	6 0	12 14
October 1	6 4	5 36	11 32	6 4	5 36	11 32	6 4	5 36	11 32	6 5	5 35	11 30	6 5	5 35	11 30	6 6	5 34	11 28	6 6	5 34	11 28	6 6	5 34	11 28	6 6	5 34	11 28	6 7	5 33	11 26
11	6 23	5 11	10 48	6 24	5 10	10 46	6 25	5 10	10 45	6 25	5 9	10 44	6 26	5 8	10 42	6 27	5 7	10 40	6 27	5 7	10 40	6 28	5 6	10 38	6 29	5 5	10 36	6 30	5 4	10 34
21	6 43	4 47	10 4	6 44	4 46	10 2	6 45	4 45	10 0	6 46	4 44	9 58	6 48	4 43	9 55	6 49	4 41	9 52	6 50	4 40	9 50	6 51	4 39	9 48	6 52	4 38	9 46	6 53	4 37	9 44
Novem. 1	7 5	4 24	9 19	7 6	4 22	9 16	7 8	4 20	9 12	7 10	4 18	9 8	7 12	4 16	9 4	7 14	4 14	9 0	7 15	4 12	8 57	7 18	4 10	8 52	7 20	4 9	8 49	7 21	4 8	8 47
11	7 24	4 3	8 39	7 26	4 2	8 36	7 29	4 0	8 31	7 31	3 57	8 26	7 33	3 55	8 22	7 35	3 53	8 18	7 38	3 50	8 12	7 40	3 48	8 8	7 43	3 45	8 2	7 46	3 42	7 56
21	7 44	3 48	8 4	7 46	3 46	8 0	7 49	3 43	7 51	7 52	3 40	7 48	7 55	3 37	7 42	7 57	3 35	7 38	8 0	3 32	7 32	8 3	3 29	7 26	8 7	3 25	7 18	8 10	3 22	7 12
Decem. 1	8 0	3 38	7 38	8 3	3 35	7 32	8 6	3 32	7 26	8 9	3 29	7 20	8 12	3 25	7 13	8 16	3 22	7 6	8 19	3 19	7 0	8 22	3 16	6 54	8 26	3 12	6 46	8 29	3 9	6 40
11	8 14	3 32	7 18	8 17	3 29	7 12	8 20	3 25	7 5	8 24	3 22	6 58	8 27	3 19	6 52	8 30	3 16	6 46	8 34	3 12	6 38	8 38	3 8	6 30	8 43	3 3	6 20	8 47	2 59	6 12
21	8 23	3 33	7 10	8 26	3 30	7 4	8 29	3 26	6 57	8 33	3 23	6 50	8 36	3 19	6 43	8 40	3 16	6 36	8 44	3 12	6 28	8 48	3 8	6 20	8 52	3 3	6 11	8 57	2 59	6 2
31	8 25	3 41	7 16	8 28	3 38	7 10	8 31	3 34	7 3	8 35	3 31	6 56	8 38	3 28	6 50	8 41	3 25	6 44	8 45	3 21	6 36	8 49	3 17	6 28	8 54	3 12	6 18	8 58	3 8	6 10

The times of Sun-rising and Sun-setting, and the Length of the Day, at all those Towns and Villages which are not mentioned at the head of this Table, will be the same as those of that Town whose name is mentioned, and which is situated the nearest to them. The Numbers in this Table will answer for many Years.

APPEARANCE OF THE HEAVENS

ON JANUARY 1, 1850, AT 8H. P.M., AS SEEN NEAR LONDON.

EAST OF THE MERIDIAN.

N.E. by N.—The Great Bear, 35° high; the Pointers about 32° high.
N.E.—Leo Minor, 15° high; above which are the fore-legs of the Great Bear.
N.E. by E.—Lynx, 45° high.
E.—The Crab, 20° high; Pollux, 34°; Castor, 38°; Beta Aurigæ, 62°; and Capella, 67° high.
E. by S.—Procyon, 17° high.
S.E. by E.—Sirius, 6° high; Alpha Orionis, 33° high; Mars, 42°; and Beta Tauri, 44° high.
S.E.—The three stars in the belt of Orion, 27°; Gamma Orionis, 36° high; above which is the Bull.
S.E. by S.—Rigel, 24° high; Aldebaran, 50° high; above which, the legs of Perseus.
S. by E.—The Pleïades, 61° high.

ON THE MERIDIAN.

A little above the north horizon is a part of Draco; Ursa Minor, Polaris; above which, Camelopardalus; Perseus, near the zenith; Alpha Persei, 4° east of the meridian; and Beta Persei, 2° west; below these, the Fly, the hinder-part of the Ram, the head of the Whale; and Alpha Ceti, 42° high.

WEST OF THE MERIDIAN.

S.S.W.—Alpha Arietis, 61° high; and Cetus, 23° high.
S.W. by S.—Hinder part of the Whale, 15° high; and Gamma Andromedæ, 15° from the zenith.
S.W.—Saturn, 27° high.
S.W. by W.—Gamma Pegasi, 40° high; and Beta Andromedæ, 63° high.
W.S.W.—Alpha Andromedæ, 53° high; and Alpha Pegasi, 32° high.
W.—Beta Pegasi, 42° high; Andromeda, 20° from the zenith.
W. by N.—Delphinus.
N.W. by W.—Alpha Cygni, 33° high; and Alpha Lyræ, N.W. 10° high.
N.N.W.—Beta and Gamma Draconis, 18° high.

APPEARANCE OF THE HEAVENS ON FEBRUARY 1, 1850, AT 8H. P.M.

EAST OF THE MERIDIAN.

N.N.E.—The Northern Crown rising.
N.E. by N.—The tail, back, and the hinder part of the Great Bear; and near the zenith the head of the Lynx; Eta of the Great Bear, 20°; and Zeta, 26° high.
Near N.E.—Delta of the Great Bear, 34°; Alpha, 44°; Gamma, 34°; and Beta, 41° high.
E.N.E.—Leo Minor, 30°; and Lynx, 60° high.
E.—Regulus, 19° high; above which, Leo; and, higher up, the legs of the Lynx.
E.S.E.—Hydra, 20°; Crab, 45°; Gemini, 55°; Pollux, 53°; and Castor, 57° high.
S.E.—Procyon, 35° high.
S.S.E.—Sirius, 20° high.
S. by E.—Alpha Orionis, 44° high.

ON OR NEAR THE MERIDIAN.

Starting from the N., at a little west of the meridian Beta and Gamma Draconis, 15° high; above which, the Little Bear, Polaris, Camelopardalus, Auriga in zenith; south of the zenith, Taurus; lower, and a little west, Orion; still lower, the Hare, at the height of 20°; near the meridian, Rigel, 30°; three stars in Orion, 31°; Gamma Orionis, 44°; Aldebaran, a little west of meridian, 54°; Mars, a little east of the meridian, 64° high; Beta Tauri, near Mars, 66° high: Capella is near the zenith.

WEST OF THE MERIDIAN.

Near S.W. by S.—Alpha Ceti, 35°; and the Pleïades, 58° high.
S.W.—Cetus, 15° high; above which, the Ram; higher still, the Fly; and Perseus near the zenith.
W.S.W.—Saturn, 9° high.
W. by S.—Gamma Pegasi, 22°; and Gamma Andromedæ, 58° high.
W.—Alpha Andromedæ, 31°; and Beta Andromedæ, 46° high.
Near W. by N.—Alpha Pegasi, 11° high.
Near W.N.W.—Beta Pegasi, 23° high.
Near N.N.W.—Alpha Cassiopeiæ, 51°, and Beta Cassiopeiæ, 48° high.
N.W. by N.—Alpha Cygni, 59° high; and Alpha Lyræ is near the horizon in the N.N.W.

APPEARANCE OF THE HEAVENS ON MARCH 1, 1850, AT 9H. P.M.

EAST OF THE MERIDIAN.

N. by E.—Alpha Lyræ rising.
N.N.E.—Gamma Draconis, 15°; Beta Draconis, 18°; and the Little Bear, 45° high.
Near N.E.—The Northern Crown rising.
N.E. by E.—Boötes, 17° high; above which, parts of the Great Bear, Eta, Zeta, Epsilon, Delta, and Gamma of which are 36°, 42°, 46°, 52°, and 54° high, respectively; higher still, Beta, 61° high; and Alpha, N. of Beta, 61° high.
Near E.N.E.—Arcturus, 11°; in the east the Virgin rising; above which Coma Berenices; and higher still, Leo Minor.
Near E.S.E.—Beta Leonis, 32° high; Jupiter, 16° high.
Near S.E.—Regulus, 41°; and Gamma Leonis, 48° high.
S.S.E.—Alpha Hydræ, 27° high.

ON THE MERIDIAN.

The body of the Unicorn, 35° high; above which is the Little Dog, a little W. of meridian is Procyon, 44° high; above which Gemini, with Pollux near the meridian, 67° high, and Castor a little more West, 70° high; between this point and the zenith is the Lynx; N. of the zenith is the head of the Great Bear; and near the N. horizon is the body of the Swan.

WEST OF THE MERIDIAN.

Near S.S.W.—Sirius, 20° high; a little more W. Beta Canis Majoris, 18°.
S.W. nearly.—Rigel, 21°; three stars in Orion, 30°; Gamma Orionis, 35°; Alpha Orionis, 39° high; and Mars, 57° high.
W.S.W.—Aldebaran, 36°; and Beta Aurigæ, 69° high.
W. by S.—Alpha Ceti, 13°; the Pleïades, 36°; and Capella, 64° high.
W. by N.—Alpha Arietis, 19°, and Beta Persei, 42° high.
N.W. by N.—Alpha Andromedæ, 6°; Beta Andromedæ, 19°; Gamma Andromedæ, 32°; Gamma Pegasi, 48°; and Beta Cassiopeiæ, 30° high.

APPEARANCE OF THE HEAVENS ON APRIL 1, 1850, AT 9H. P.M.

EAST OF THE MERIDIAN.

N. by E.—Alpha Cygni, 5°.
N.E. by N.—The Harp rising; Alpha Lyræ, 8° high; above which, a little to the left, is Gamma Draconis, 24°, and Beta Draconis, 26°; higher up, the Little Bear.
N.E.—Alpha Draconis, 55° high.
N.E. by E.—Zeta, Epsilon, Delta, Gamma, and Beta of the Great Bear, 57°, 61°, 69°, 71°, and 79° high, respectively.
Near N.E. by E.—The Northern Crown, 25° high.
E.—Alpha Serpentis, 5°; and Arcturus, 30° high.
S.E. by E.—Spica Virginis, 11°.
S.E.—Beta Leonis, 47° high.
S.E. by S.—Jupiter, 52° high.

ON AND NEAR THE MERIDIAN.

Alpha Hydræ, 31°; Regulus, 41°; higher up, the head of the Lion, the fore-legs and body of the Great Bear, with the Pointers, about 10° east of the meridian; and below Polaris is Cepheus.

WEST OF THE MERIDIAN.

S.W.—Sirius, 11°; Procyon, 38° high; above which, the Crab.
Near W.S.W.—Rigel, 6°; Orion's belt, 15°; a little west, Gamma Orionis, 19°; Alpha Orionis, 25°; Gamma Geminorum, 38°; Castor, 58°; a little west, Pollux, 56°; higher up, the body of the Lynx, and the head of the Great Bear: Mars, 47° high.
W.—Aldebaran, 19°; Beta Tauri, 36°.
W. by N.—The Pleïades, 18°; Beta Aurigæ, 53°; and Alpha Arietis, setting.
W.N.W.—Capella, 46° high.
N.W. by W.—Beta Persei, 25° high; a little to the north, Alpha Persei, 33° high.
Near N.W.—Beta Andromedæ, 7°; Gamma Andromedæ, 18°; and N.N.W., 25° high, Cassiopeiæ.

APPEARANCE OF THE HEAVENS ON MAY 1, 1850, AT 10H. P.M.

EAST OF THE MERIDIAN.

N. by E.—Beta Cassiopeiæ, 20° high.
N.E.—Alpha Cygni, 20° high.
N.E. by E.—Gamma Draconis, 43° high; and Beta Draconis, 47° high.
E.N.E.—Alpha Lyræ, 30° high.
E. by S.—Alpha Ophiuchi, 20°; and Alpha Herculis, 25° high.
E.S.E.—The Northern Crown, 40° high.
S.E. by E.—Alpha Serpentis, 34° high.
S.E. by S.—Beta Libræ, 22°; and Arcturus, 54° high.
S. by E.—Spica Virginis, 28° high.

ON AND NEAR THE MERIDIAN.

Cassiopeia; above which the middle star in the tail of the Bear, with Zeta 5° to the E., Delta 2° to the W., and Alpha, Beta, and Gamma of the Great Bear within 13° W. of the Meridian, and all near the zenith.

WEST OF THE MERIDIAN.

S.S.W.—Beta Leonis, 43°.
Near S.W.—Alpha Hydræ, 17°; Regulus, 40°; Gamma Leonis, 49° high; and Jupiter, 42° high.
W.—Procyon, 70° high; Mars, 29° high.
W. by N.—Gamma Geminorum, 12°; Pollux, 32°; and Castor, 32° high.
N.W. by W.—Beta Tauri, 10°.
N.W.—Capella, 23°; Beta Aurigæ, 27°; above these, and near the zenith, the Great Bear.
Near N.N.W.—Beta Persei, 6°; and Alpha Persei, 16° high.

APPEARANCE OF THE HEAVENS ON JUNE 1, 1850, AT 10H. P.M.

EAST OF THE MERIDIAN.

N.N.E.—Beta Cassiopeiæ, 24° high.
N.E. by E.—Alpha Cygni, 35° high.
E.N.E.—Gamma Draconis, 60°; and Beta Draconis, 64° high.
E. by N.—Alpha Lyræ, 48°.
E. by S.—Alpha Aquilæ, 15° high.
Near S.E.—Alpha Ophiuchi, 40°; and Alpha Herculis, 44° high.
S.S.E.—Northern Crown, 65° high.

ON OR NEAR THE MERIDIAN.

Perseus near the north horizon, Alpha Draconis a little north of zenith, Arcturus 58° high, and 10° W. of the meridian; and Alpha Libræ near the meridian, at the height of 24°.

WEST OF THE MERIDIAN.

S.S.W.—Spica Virginis, 25° high.
S.W. by W.—Beta Leonis, 39°; and Jupiter, 28° high.
W. by S.—Regulus, 23° high; and Gamma Leonis, 30° high.
W. by N.—Pollux, 12° high; Castor, 13°; and Mars, 18° high.
N.W. by N.—Beta Aurigæ, 14° high; Venus setting.
N.N.W.—Capella, 12° high; above which is the Great Bear.

APPEARANCE OF THE HEAVENS ON JULY 1, 1850, AT 10H. P.M.

EAST OF THE MERIDIAN.

N. by E.—Alpha Persei, 12° high.
N.E. by N.—Gamma Andromedæ, 10°; and Beta Cassiopeiæ, 33° high.
N.E. by E.—Alpha Andromedæ, 10° high.
E.N.E.—Beta Pegasi, 19° high.
E. by N.—Alpha Pegasi, 9°; and Alpha Cygni, 51° high.
E. and near the Zenith.—Gamma and Beta Draconis.
S.E. by E.—Alpha Aquilæ, 34°; and Alpha Lyræ, 69° high.
S. by E.—Alpha Ophiuchi, 41° high; and Alpha Herculis, 49° high.

ON OR NEAR THE MERIDIAN.

Capella near the horizon, and due N.; and Antares 4° W. of the meridian, and 12° above the S. horizon.

WEST OF THE MERIDIAN.

S. by W.—Beta Scorpii, 18°.
S.W. by S.—Alpha Libræ, 18°; Beta Libræ, 26°; and Alpha Serpentis, 45° high; the Northern Crown, 65° high.
S.W. by W.—Spica Virginis, 14°; and Arcturus, 46° high.
W.—Beta Leonis, 22° high; Jupiter, 10° high.
W. by N.—Regulus and Mars nearly setting.
N.W.—Great Bear, 48° high; and Castor is setting near W. by N.
N.W. by N.—Venus setting.

APPEARANCE OF THE HEAVENS ON AUGUST 1, 1850, AT 10H. P.M.

EAST OF THE MERIDIAN.

Near N. by E.—Beta Aurigæ, 7°; and Capella, 9° high.
Near N.E. by N.—Alpha Persei, 20°; and Beta Persei, 13° high.
Near N.E.—Gamma Andromedæ, 21°; and Beta Cassiopeiæ, 45° high.
N.E. by E.—Alpha Arietis rising.
E.N.E.—Beta Andromedæ, 22° high.
E. by N.—Alpha Andromedæ, 26° high; Saturn will rise within a few minutes.
E.—Gamma Pegasi, 16°; Beta Pegasi, 36°; and Alpha Cygni, 70° high.
E. by S.—Alpha Pegasi, 26° high.
S.S.E.—Alpha Aquilæ, 45° high.

ON OR NEAR THE MERIDIAN.

The Lynx, near the north horizon; Draco, near the zenith; Lyra south of the zenith; Alpha Lyræ being on the meridian: near the zenith, and 5° W. of the meridian, is Gamma Draconis; and 9° W. is Beta Draconis.

WEST OF THE MERIDIAN.

S.S.W.—Alpha Ophiuchi, 39°; Alpha Herculis, 40° high.
S.W. by S.—Antares, 7°; a little to the right is Beta Scorpii, 10° high.
S.W. by W.—Alpha Libræ, 6°; and Beta Libræ, 16° high.
W. by S.—Arcturus, 32° high; the Northern Crown, 43° high.
N.W.—The stars in the tail of the Great Bear, 40° high.
N.W. by N.—The Pointers, 35° high.

APPEARANCE OF THE HEAVENS ON SEPTEMBER 1, 1850, AT 9H. P.M.

EAST OF THE MERIDIAN.

N.N.E.—Beta Aurigæ, 9° high; to the right, Capella, 12° high.
N.E.—Alpha Persei, 26° high.
E.N.E.—Alpha Arietis, 14°; Beta Andromedæ, 32° high.
E. by N.—Beta Persei, 20°; Beta Cassiopeiæ, 53° high.
E.—Saturn, 5° high.
E. by S.—Gamma Pegasi, 26°; Beta Pegasi, 36°; and Alpha Pegasi, 37° high.

ON OR NEAR THE MERIDIAN.

Body of the Lynx, Polaris, a little S. of the zenith; and 10° E. of the meridian, Alpha Cygni; 13° W. of the meridian, Alpha Lyræ; Alpha Aquilæ, on the meridian, 47° above the southern horizon.

WEST OF THE MERIDIAN.

S.W.—Alpha Herculis, 42°; Alpha Ophiuchi, 43°; and Alpha Lyræ, 71° high.
W.S.W.—Beta Libræ, 7°; and Alpha Serpentis, 23° high.
W.—The Northern Crown, 42°; Beta Draconis, 72°; and Gamma Draconis, 74° high.
W. by N.—Arcturus, 20° high.
N.W. by N.—The stars in the tail of the Great Bear, 33° high.
N.N.W.—The Pointers, 30° high.

APPEARANCE OF THE HEAVENS ON OCTOBER 1, 1850, AT 9H. P.M.

EAST OF THE MERIDIAN.

N.E. by N.—Castor rising.
Near N.E.—Capella, 26°; and Beta Aurigæ, 20° high.
Between E. by N. and E.N.E.—Aldebaran, 7°; Beta Persei, 38°; and Alpha Cassiopeiæ, 64° high.
Near E. by N.—The Pleïades, 18° high; and Gamma Andromedæ, 46° high.
E. by S.—Alpha Ceti, 10°; Alpha Arietis, 33°; Beta Andromedæ, 51° high.
E.S.E.—Alpha Andromedæ, 55° high
S.E. by E.—Saturn, 25° high; and Gamma Pegasi, 43° high } These four stars form a square, called the square of Pegasus.
S.E. by S.—Beta Pegasi, 62° high.
S.S.E.—Alpha Pegasi, 51° high.

ON OR NEAR THE MERIDIAN.

The head and fore part of the Great Bear, on the north meridian. A little west of the meridian are the Pointers, and more west are Gamma and Delta of the Great Bear; and still more west, the three stars in the tail. Above Polaris is Cephens; east of which is Cassiopeia; a little south of the zenith, and 15° west of the meridian, is the body of the Swan, Alpha Cygni being about 10° from the meridian: Aquarius is situated a little south of the Equator.

WEST OF THE MERIDIAN.

S.S.W.—The four stars forming the rhomboidal figure, called Delphinus, 50° high.
S.W. by S.—Alpha Aquilæ, 42° high.
W. by N.—Alpha Lyræ, 56°; and Alpha Cygni, 77° high.
W.N.W.—The Northern Crown, 15° high; Beta and Gamma Draconis, 53° high.
N.W. by W.—Arcturus, setting.
N.N.W.—The tail of the Bear, 20° high.

APPEARANCE OF THE HEAVENS ON NOVEMBER 1, 1850, AT 8H. P.M.

EAST OF THE MERIDIAN.

N. by E.—The head of the Great Bear, 20° high.
N.E. by N.—Castor, 5° high.
N.E. by E.—Beta Aurigæ, 25°; Capella, 32° high.
E.N.E.—Alpha Persei, 47° high.
E.—Aldebaran, 15°; Pleïades, 29°; Gamma Andromedæ, 58° high.
E S.E.—Alpha Ceti, 34°; Alpha Arietis, 45°; Beta Andromedæ, 61° high.
S.E.—Saturn, 34°; Alpha Andromedæ 65°, and Gamma Pegasi 50° high, being the eastern pair of stars forming the square of Pegasus.

ON OR NEAR THE MERIDIAN.

The Pointers nearly on the meridian below Polaris, with Gamma and Delta of the Great Bear about 10° west of the meridian; Cepheus is situated between Polaris and the zenith. Within a few degrees east of the meridian is Beta Pegasi, 64° high; both Alpha Pegasi and Fomalhaut are near the meridian—the former is 52°, and the latter is 8° high.

WEST OF THE MERIDIAN.

S.W.—Delphinus, 45° high.
S.W. by W.—Alpha Aquilæ, 33° high.
W.—Alpha Cygni, 67°; Alpha Ophiuchi, 16° high.
W. by N.—Alpha Lyræ, 41°; and Alpha Herculis, 14° high.
N.W. by N.—The Northern Crown, 14°; and Gamma and Beta Draconis, 14° high.
N.N.W.—The tail of the Great Bear, 20° high.

APPEARANCE OF THE HEAVENS ON DECEMBER 1, 1850, AT 8H. P.M.

EAST OF THE MERIDIAN.

N. by E.—Gamma and Delta of the Great Bear, 16° and 19° high respectively.
N.N.E.—Beta and Alpha of the Great Bear, 20° and 25° high respectively.
N.E.—The Lynx, 25°; and higher up, the legs of Camelopardalus.
N.E. by E.—Pollux, 12°; and Castor, 17° high.
E.N.E.—Beta Aurigæ, 40°; Capella, 46°; and higher up, Perseus.
E.—Alpha Orionis, 13° high; and Medusa's Head, 62° high.
E. by S.—The three Stars in a straight line, and at equal distances from each other, forming the belt of Orion, 10° high; Aldebaran, 32° high.
E.S.E.—The Pleiades, 46° high; Gamma Andromedæ, 73° high.
S.E.—Alpha Ceti, 37°; and Alpha Arietis, 57° high.

ON OR NEAR THE MERIDIAN.

Under the Pole Star is the tail of the Great Bear; above Polaris is Cassiopeia; a little south of the zenith is Andromeda, Beta Andromedæ being almost 5° east of the meridian. Saturn is near the meridian, being 5° east of it, at the altitude of 42°; and near the south horizon is the tail of Cetus.

WEST OF THE MERIDIAN.

S. by W.—Gamma Pegasi, 52°; and Alpha Andromedæ, 65° high.
S.W. by S.—Alpha Pegasi, 49° high.
S.W.—Beta Pegasi, 60° high.
W. by S.—Delphinus, 30° high; and near this point, at 17° high, is Alpha Aquilæ.
W. by N.—Alpha Cygni, 51° high.
N.W. by W.—Alpha Lyræ, 30° high.
N.W.—Beta Draconis, 31° high; Gamma Draconis, 33° high.
N.W. by N.—The Northern Crown, setting.

The names and relative situations of the principal constellations and stars are given in the preceding description of the heavens at a convenient time on the first day of every month, and very great facilities are thus given to the young astronomer to learn them.

The altitude of the constellation, star, or planet is to be understood as measured in angular measure, upon a vertical circle, above that point in the horizon which an arc of a circle drawn from the zenith (the point immediately overhead), and passing through or near the objects named, touches the horizon. The measure of this arc, or the angular distance from the zenith to the horizon is 90°; therefore, as all the altitudes are expressed in angular measure, that is, in degrees, whose symbol is °, it will be readily seen that if an object be mentioned as being 10° high, it is above the horizon by one-ninth part of the whole distance from the horizon to the zenith; if 30°, it would be one-third part; if 45°, it would be situated midway between the horizon and zenith.

For any day in the month the same description will apply for the stars, and for the planets nearly; only it will correspond to a time earlier each day by 3 minutes and 56 seconds (4 minutes nearly). Thus, in every month, the description will be the same as on the 1st day of that month.

	Earlier than the Time on the 1st. H. M. S.		Earlier than the Time on the 1st. H. M. S.
On the 2nd day, at	0 3 56	On the 17th day, at.. ..	1 2 56
3rd	0 7 52	18th	1 6 52
4th	0 11 48	19th	1 10 48
5th	0 15 44	20th	1 14 44
6th	0 19 40	21st	1 18 40
7th	0 23 36	22nd	1 22 36
8th	0 27 32	23rd	1 26 32
9th	0 31 28	24th	1 30 28
10th	0 35 24	25th	1 34 24
11th	0 39 20	26th	1 38 20
12th	0 43 16	27th	1 42 16
13th	0 47 12	28th	1 46 12
14th	0 51 8	29th	1 50 8
15th	0 55 4	30th	1 54 4
16th	0 59 0	31st	1 55 0

Thus, on January 16th, at 7h. 1m. P.M., the stars will occupy the same position in the heavens as they will do on January 1st, at 8h. P.M.

The description of the heavens, so far as the stars and constellations are detailed, will be the same nearly, at the same times, on the same days for many years.

TIMES OF THE POLE STAR (POLARIS) BEING ON THE MERIDIAN, OR DUE NORTH, DURING THE YEAR 1850.

THE Pole Star (that which is usually so called) is situated at the angular distance of 1½ from the Pole, and describes a circle at this distance around this point or pole. If we suppose a star there placed, it would appear stationary. The Pole Star not being so placed, it is due north only at such times as in its revolution it is on the meridian, which circumstance takes place twice every day—once when the star is above the pole, and once when it is below the pole. The following are the times, on the 1st day of every month during the year 1850, that the Pole Star is so situated:—

	H. M. S.			H. M. S.		
Jan. 1 at	6 23 12	A.M.	below the Pole, and at	6 21 13	P.M.	above the Pole.
Feb. 1 „	4 20 53	„	„	4 18 55	„	„
March 1 „	2 30 29	„	„	2 28 31	„	„
April 1 „	0 28 27	„	„	0 26 29	„	„
May 1 „	10 28 36	„	above the Pole, and at	10 26 38	„	below the Pole.
June 1 „	8 27 1	„	„	8 25 3	„	„
July 1 „	6 29 27	„	„	6 27 29	„	„
Aug. 1 „	4 27 58	„	„	4 26 0	„	„
Sept. 1 „	2 26 25	„	„	2 24 27	„	„
Oct. 1 „	0 28 38	„	„	0 26 40	„	„
Nov. 1 „	10 24 46	„	below the Pole, and at	10 22 48	„	above the Pole.
Dec. 1 „	8 26 35	„	„	8 24 37	„	„

From these times those of the meridian passage of the star can be easily calculated for any other day in every month.

DISCOVERY OF ANOTHER SMALL PLANET.

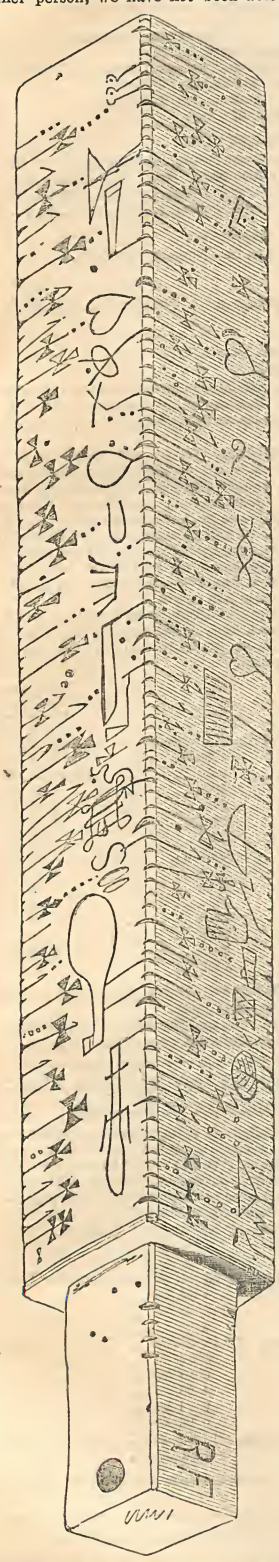
ON April 12, 1849, Signor de Gasparis, of the Observatory of Naples, whilst comparing Steinheil's Star Map for hour XII with the heavens, discovered a Planet: its appearance at this time was that of a small star of the 9th or 10th magnitude.

M. de Gasparis referred the naming of his new Planet to M. Capocci, who has called it *Hygeia*. (See the monthly notices of the Royal Astronomical Society, Nos. 7 and 8 of the 9th volume, for Ephemerides and Elements.)

CLOG ALMANACK

PRESERVED IN THE CHETHAM LIBRARY, MANCHESTER.

WHETHER the "Clog," of which we here give an Engraving, was originally left to the Library by the founder, or was presented subsequently by some other person, we have not been able to ascertain. Though unquestionably formed after an ancient Runic type, it is certainly not of great antiquity; and probably not of an earlier date than the time of Humphrey Chetham, who lived in the reigns of James I. and Charles I., and founded the library which bears his name, in 1665. About forty years ago, when a boy belonging to the school usually acted as guide to visitors to the Library, he never failed to draw their attention to the "Clog," as one of the principal curiosities. "This," exclaimed the juvenile *Cicerone*, "is a Clog Almanack, such as were in use in this country before the invention of printing."



Almanacks, or more properly Calendars, of this kind, were used by the Danes, Norwegians, and other people of northern race, at a very early period; and a full account of their various kinds and different names—Rim-stocks, Rune-stocks, Primstaves, Scipiones Runici, and Baculi Annales—are to be found in the "FASTI DANICI" of Olaus Wormius, printed at Copenhagen, 1643. One of those Calendars, in the form of a walking-stick, was exhibited by Sampson Hodgkinson, Esq., at the meeting of the Archæological Institute, at Lincoln, in 1848; and an engraving of it is given in the ILLUSTRATED LONDON ALMANACK for 1849.

Verstegan, in his "Restitution of Decayed Intelligence in Antiquities," 1605, thus speaks of those calendars in his third chapter, "Of the Ancient Manner of Living of our Saxon Ancestors:"—"They used to engrave upon certaine squared sticks, about a foot in length, or shorter or longer as they pleased, the courses of the moones of the whole yeare, whereby they could always certainly tell when the new moones, ful moones, and changes should happen, as also their festial days; and such a carved stick they called an *Al-mon-aght*—that is to say, Al-moon-heed: to wit, the regard or observation of all the moones; and herehence is deryved the name of Almanack."

That we may not be supposed to concur in this derivation of Almanack, we merely remark, that "our Saxon ancestors" had no such name for their calendars as "*Al-mon-aght*;" and that Verstegan's etymology may, with better reason, be termed "All-moon-shine."

Dr. Robert Plot, in his "Natural History of Staffordshire," printed at Oxford, 1686, gives a full account of Clog Almanacks of the kind represented in our Engraving; and speaks of them as being still in use "among the meaner sort of people" in that county. He, however, says that it is "a sort of antiquity so little known, that it hath scarce been heard of in the southern parts of England, and understood now but by few of the gentry in the northern." With respect to the term "*Clog*," he thus runs his head against it, while pretending that it was something difficult to be found:—"As to the divers names of them, they are here called *Cloggs*, for what reason I could not learn, nor, indeed, imagine, unless from the English *logg* (a term we usually give to any piece of wood), or from the likeness of some of the greater sorts of them to the cloggs wherewith we usually restrain the wild, extravagant, mischievous motions of some of our dogs." In Staffordshire, in his time, some few were of brass; but most of wood, chiefly box: others were of fir and of oak, though not so frequent. Those of larger size, such as are represented in our Engraving, were commonly hung at the end of the mantel-tree, by the chimney-nook; others of smaller size were carried in the pocket.

Each of the four faces contained a period of three months, commencing with the 1st of January. The days were represented by the notches on the edges, every seventh notch being somewhat wider than the others; and the first day of each month was distinguished by a longer stroke. In those clogs there was no indication of the Dominical Letter. The Golden Number, when under five, was represented by so many points. The number five was signified by a line with an angular crook at the top; and the numbers between five and ten, by the addition of points or dots. The sign of ten was a cross; and the intermediate numbers to fourteen were signified by the addition of dots. Fifteen was represented by a cross with a crook at the top; the intermediate numbers to eighteen being represented by the addition of dots. Nineteen, the highest number in the cycle, was represented by a double cross.

The principal festivals were symbolically represented. For instance—the Epiphany, 6th January, by a star; Valentine's Day, 14th February, a true-lovers' knot; the Purification, Annunciation, Assumption, and other festivals of the Virgin, by a Heart; St. David, 1st March, a Harp; St. Barnabas, 11th June, a Rake—Haymaking; St. Peter, 29th June, Keys; St. Lawrence, 10th August, a Gridiron; St. Crispin, 25th October, a pair of Shoes; St. Katherine, 25th November, a Wheel.

Our Engaving is from a drawing by Mr. Travis, of the firm of Travis and Mangnall, architects, Manchester.

WHITSUN ALE JUG.

THIS representation of a Whitsun Ale Jug is taken from an excellent specimen in the interesting Museum collected by T. Crofton Croker, Esq. The jug is of white earthenware, and the word WHIT, and the date 1649, and the characteristic flourish underneath it, are painted blue.

Whitsun Ales were festivals formerly common at Whitsuntide, in which ale formed the predominant liquor, and hence arose the metonymy; although there has been a vast amount of pains employed to trace the name to other sources. As the money requisite for the feasts was collected by the churchwardens of the parish, Whitsun Ales have also been called Church Ales. They were kept on Sundays, notwithstanding their low and profane revelry; and entries often occur in church books of disbursements in these unholy pastimes, with which, however, are oddly mixed up charges for repairs of the church, maintaining of orphans, &c.

WHITSUN ALE JUG.

Mr. Douce has left us the following details of the Whitsun Ale:—"Two persons are chosen, previously to the meeting, to be lord and lady of the ale, who dress as suitably as they can to the characters they assume. A large empty barn, or some such building, is provided for the lord's hall, and fitted up with seats to accommodate the company. Here they assemble to dance and regale in the best manner their circumstances and the place will afford; and each young fellow treats his girl with a ribbon or favour. The lord and lady honour the hall with their presence, attended by the steward, sword-bearer, purse-bearer, and mace-bearer, with their several badges or ensigns of office. They have likewise a train-bearer or page, and a fool or jester, drest in a party-coloured jacket, whose ribaldry and gesticulation contribute not a little to the entertainment of some part of the company. The lord's music, consisting of a pipe and tabor, is employed to conduct the dance. Some people think this custom is a commemoration of the ancient *Drink-lean*, a day of festivity formerly observed by the tenants and vassals of the lord of the fee within his manor; the memory of which, on account of the jollity of those meetings, the people have thus preserved ever since. The glossaries inform us that this Drink-lean was a contribution of tenants towards a potation, or ale, provided to entertain the lord or his steward."

TOKENS OF THUNDER.

THE following curious notices of the tokens of thunder in each month of the year, are from an illuminated almanack of very early date:—

"In the monethe Jannarie if ther be thundir it bitokeneth grete wyndis, haboundaunce of fruytis, and bateil to come in that yeer.

"In the monethe of Februarie, if ther be thundir it bitokeneth deeth of many men, and most of riche men by soris.

"In the monethe of Marcius, if thundir sowne, it bitokeneth grete wyndis, plenté of fruytis and strues in the peple.

"In Aprilis thundir if it lowrie it shewith myry yeeryng and fructuous, but it bitokeneth deth of wickid men.

"In Mayus thundir if it come it bitoketh nedre of fruytis and hungir in that yeer.

"In Juyn if it thundir it bitokeneth that wodis shul be....of....of wyndis and ther shal be grete weondres of houns and of wolves.

"In the monethe of Juli if thundir in that yeer shal be good corn yeeryng but the birthe of beestis shal peresche.

"August thundir it bitokeneth prosperité in the commune and mané man shul be sub....

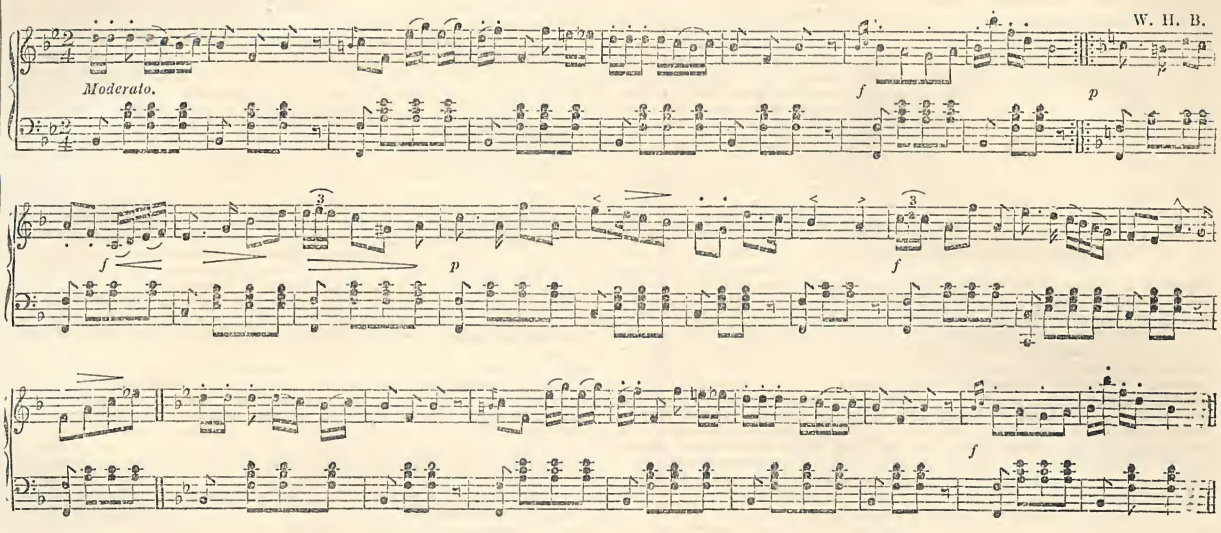
"In September if it thundre it bitokeneth aboundance of fruytis.

"In October if it thundir it bitokeneth a right greet wynd and geod harvest and scarsnes of fruytis.

"In the monethe of November if it thundir it bitokeneth aboundaunce of fruytis and myrthe among folk.

"In December if thundir it bitokeneth aboundaunce of cornes and pees and accord in the peple."

THE CHRISTMAS POLKA.

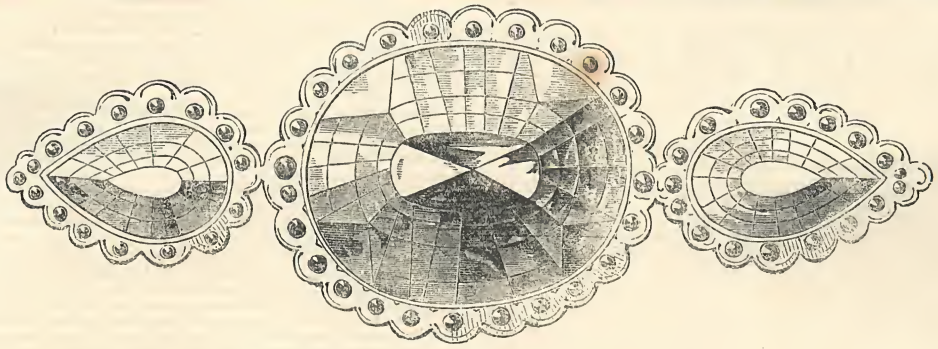


THE CELEBRATED DIAMOND, KOH-I-NOOR, OR MOUNTAIN OF LIGHT.

This famous diamond, which was formerly in the treasury of the Maharajah Dhuleep Singh, in the Punjaub, has been forfeited by his treachery to the British; and will, it is said, be brought to England in attestation of the success of our arms in India; which has been suggested that the mischievous superstition attached to the possession of this unique gem might be utterly crushed by this retributive consignment.

We have taken some pains to obtain a Sketch of the *Kooh-i-noor*, or "Mountain of Light," and of Runjeet's ruby; both from drawings copied from originals, by Juan Ram, to whom Runjeet Singh sent them for the purpose, at the request of Lord William Bentinck.

It is generally believed that this diamond belonged to the Pandus; but Tavernier says that it was dug out of the mine of Koloor, which is about four days' journey north-west from Masulipatam, in the Nizam's territories, on the banks of the Godavuree; and that it was presented to Shah Jehan by Meer Jumla, who was at first the Commander-in-Chief of the King of Golkonda's army, and afterwards of that of Aurungzeb. The mine of Koloor was discovered not more than a hundred years before the time of Shah Jehan; when a Zumeendar found a



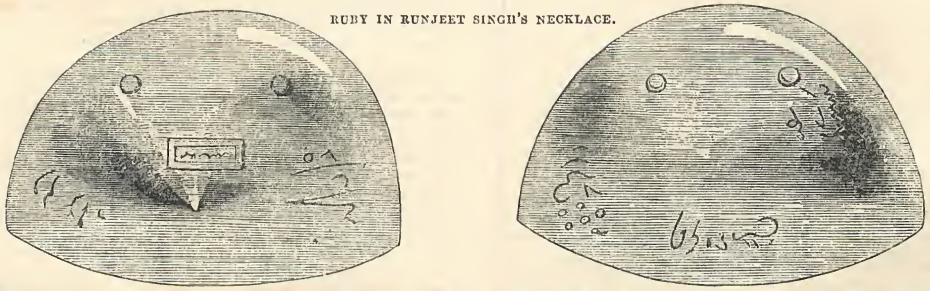
RUNJEET SINGH'S DIAMOND—"THE MOUNTAIN OF LIGHT."

diamond as he was preparing the ground for sowing melons, and this led to the discovery. The Koh-i-Noor is 319 ruttees in weight, and its value was estimated, in the time of Shah Jehan, at 78,15,525 rupees Shah Jehan applied it to adorn the famous Peacock Throne, which was taken by Nadir Shah to Persia, whence the diamond was brought back to Affghanistan by Ahmedshah Doorance. It remained in the possession of his successors until Maharajah Runjeet Singh obliged Shah Shoojah to deliver it to him.

It is said that this diamond was taken from India by Nadir, the King of Persia, on the same date (29th of March) as that on which, during the past year (1849), it was retaken from the Sikhs by the rulers of India. The fact is, that it belonged originally to the rulers of India; and now it may be said to have come back again, after such a long time, to the hands of its rightful owners.

Runjeet Singh was accustomed to wear this diamond on his right arm, set, as we have engraved it, in gold, surrounded with small rubies. It has been valued at 25 crore of rupees, or 25 million pounds sterling. Tavernier, who saw it in the possession of the Great Mogul, states its weight to be 279 9-10th carats; before cutting, it weighed 900 carats. Its twin jewel is numbered among the crown jewels of Russia.

RUBY IN RUNJEET SINGH'S NECKLACE.

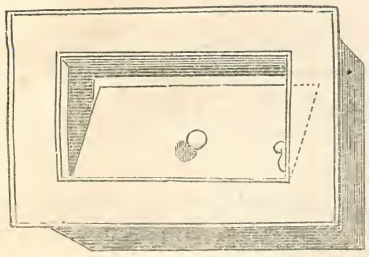


* *The Ruby*, in the accompanying Illustration, has been sketched under similar circumstances. In the Illustration both sides are shown; the gem is worn in Runjeet's necklace. It belonged to Pandoor Rajah, was taken from him by Timour, and subsequently from Timour's descendants by Ahmeed Shah. The names of the six Kings of Delhi are engraved on this Ruby:—Alumzeer II., Shah Karam II., Jehangire, Ackbar, Feroze Shah, and Ahmed Shah. Runjeet valued it at 12½ crore of rupees, or twelve millions five hundred thousand pounds sterling.

DOMESTIC INVENTIONS—SANITARY REGULATIONS, &c.

DR. ARNOTT'S VENTILATING CHIMNEY-VALVE.

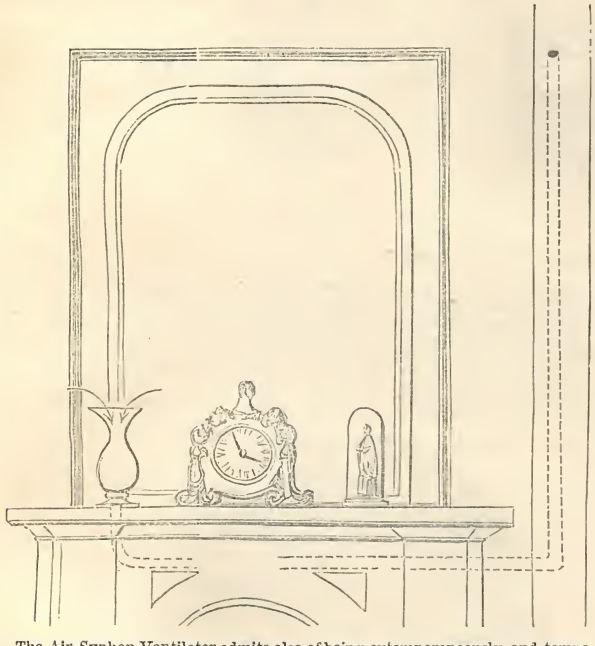
DR. ARNOTT has suggested, as some relief for an ill-ventilated room, to take a brick out of the wall, near the ceiling, so as to open a direct communication between the room and the chimney. Any occasional temporary inconvenience of down-draught will be more than compensated by the beneficial results of this simple ventilating process. As an improvement upon these chimney openings, Dr. Arnott has devised a balanced metallic valve, to prevent, during the use of fires, the escape of smoke into the room. The advantages of these openings and valves were soon so manifest, that the Referees appointed under the Building Act added a clause to their bill allowing the introduction of the valves, and directing how they are to be placed, and they are now in very extensive use. By Dr. Arnott's recommendation, in a crowded dispensary in St. James's-parish, openings were made in the chimney-flues of the rooms near the ceilings, by removing a single brick, and placing there a piece of wire-gauze, with a light curtain-flap hanging against the inside, to prevent the issue of smoke in gusty weather. The decided effect produced at once on the feelings of the inmates was so remarkable, that there was an extensive demand for the new appliance. Most of the hospitals and poorhouses in the kingdom have now these chimney-valves; and most of the medical men and others who have published of late on sanitary matters, have strongly recommended them. Dr. Arnott has freely offered this and other means of ventilation to the public; but persons desiring to use them, should be careful to employ competent makers: they are to be had of ironmongers.



PATENT AIR-SYPHON VENTILATOR.

This new mode of ventilation has been patented by Dr. Chowne, 8, Connaught-place West, Hyde-park, and is based on his finding that, "if a bent tube or hollow passage be fixed with the legs upwards, the legs being of unequal lengths, whether it be in the open air or with the shorter leg communicating with a room or other place, that the air circulates up the longer leg, and that it enters and moves down the shorter leg; and that this action is not prevented by making the shorter leg hot, whilst the larger leg remains cold; and no artificial heat is necessary to the longer leg of the Air Syphon, to cause this action to take place." Thus, by using the chimney of an ordinary room, for example (into which air has free access), as the longer leg, and by conducting a tube or channel constituting the short leg of the Air-Syphon, from any part (as near the ceiling, for instance), into the lower part of the chimney, at the suitable place, a stream of air will proceed from the apartment down the shorter leg, and away up the longer one.

The means of ventilation can be conducted by light zinc tubes passing round and through a room, and finally into the fire-place; and tubes passing from these to the upper parts of the room, the warm air would constantly descend through them to the continuous channel, and then into the larger leg of the Syphon.



The Air-Syphon Ventilator admits also of being extemporaneously and temporarily set up in a sick-room, so as to cause a constant removal of air from the upper portion of the apartment, where it is so apt to hang about the curtain furniture of the chamber, and to impregnate it with the exhalations which are so often the result and generators of disease.

A peculiar fact is, that this mode of ventilation affords facilities hitherto not known for carrying away the heat and other products of combustion from gas-burners, and other lamps, of which the products are offensive. Again, wherever the Air-Syphon Ventilator is in operation, it is certain, that, should an accidental escape of gas take place, it will not accumulate, but descend from the upper part of the room, by means of the shorter leg of the syphon.

In the accompanying Illustration, the dotted lines represent the concealed pipes, about two inches in diameter, which are brought down to the chimney opening, and concealed behind the upper part of the jambs. In like manner, the pipe may be conducted from the bottom of an ornamental vase into the fine; when the air would take the course shown by the arrows, and thorough ventilation be thus immediately established.

DANGER FROM STOVES, FLUES, AND PIPES.

It is seldom that dwelling-houses and such-like buildings take fire and are burnt from the common accidents against which it is practically impossible wholly to guard, such as those which occur to the lighter moveable furniture, and to the drapery used in them; but, for the most part, the danger arises from the exposure of timber, in some form or other, in or about the structure, to the continued action of fire, or of heat, capable, sooner or later, of inducing the combustion of timber; and, as the source is most commonly in some stove, furnace, flue, pipe, or other tube for generating or for conveying heat, or for removing the products of combustion, much of the real danger to buildings from fire would be prevented by preventing that degree of proximity between timber and all such things as can lead to the combustion of the timber. That buildings do not take fire and burn more frequently than they do so, proves that to a great extent precautions are taken, and that dangerous proximity between the conduits of fire or of heat in a condition to induce combustion and the combustible materials in the composition of buildings is prevented. The total number of fires in the metropolitan district in the twelve years from 1833 to 1845 inclusive was 7285, of which the causes of 5515 only were known, and of these 1165 were found to have arisen from flues, and fire-places improperly constructed, from furnaces, heating and cooking apparatus, pipe-stoves, drying-stoves, bakers' ovens, and kilns. The daily returns made by the London Fire-Engine Establishment to the insurance-offices state the supposed causes of the fires which occur, and from these it appears that more than one-half of the fires *which have reached the structure of buildings*, are considered to have originated in defective or over-heated chimney-flues, in dead flues, or in some of the many varieties now in use of stoves and furnaces, and their metal tubes or other adjuncts and accessories for the purpose of distributing heat, and, in some cases, for removing heated air, as in removing the product of the combustion of gas. Further investigation generally justifies the supposition of the officers of that establishment as to the cause of the fire in any case, and for the most part proves that the danger had arisen, not from accident, properly so called, but from arrangements which admit of casualty, and, generally, arrangements made contrary to existing legislative provisions for preventing such casualties. A valuable building, used as a club-house, in Gresham-street, in the city of London, was seriously damaged by fire, from the placing of a series of small furnace-fires, to form what is termed a hot-plate, upon the wooden and timber-formed floor of the kitchen of the club-house, the thin brick hearths of the furnaces being literally bedded upon the flooring-boards. The Metropolitan Buildings Act provides "as to every furnace used for the purposes of trade or manufacture, that it must not be placed upon nor within a distance of eighteen inches of any timber or wood-work."—From "A Guide to the Proper Regulation of Buildings, Streets, Drains, and Sewers," by William Hosking, Architect and C. E.

BELL-TRAPS.

To protect buildings from the foul air generated in, or returning by, their own drains, the waste-ways should be double trapped—by a Bell-trap at the sink where waste water enters from the surface, and by a well-trap, or what workmen term, in plainer language, a stink-trap, short of the inlet to the drain; and the communication between the waste-way and the drain should have such a fall, or be so much above the bottom of the drain, that the overflow may be always from the well into the drain, and not from the drain into the well. If, however, bell-traps might be soldered down, and it were done, well-traps in addition would be unnecessary. Bell-traps are commonly left loose, because many substances which pass through the grating or strainer of the trap refuse to pass the trap, either floating so that they cannot go under the lip of the bell, or sinking in the well so that they do not get over the standing end of the drain pipe; and as tea-leaves, rice, and other matters arising from the washing of plates and dishes, the ravelled threads of housecloths, hair from brooms, and many other such like matters, find their way to the grating in the sink, or at the drain-head, and enough of them pass through and lodge in the well into which the bell is dipped, the escape becomes choked, and the trap requires to be lifted to clear the way. To solder down bell-traps is, therefore, to render the sinks useless, unless they are protected from access of such obstructions, or means be devised of clearing them away. They may be protected by a wire strainer over the sink, to stop everything that can tend to choke a bell-trap before it can reach the grating; or any ordinary obstruction may be cleared by forcing all such matters as will pass the grating of a bell-trap to go under the lip of the bell, and to rise over the end of the stand-pipe, and so pass away into the drain, and the requisite force may be obtained from a slight head of water by means of a very simple apparatus that may be always at hand in every house—a tin or other cheap metal tube of three or four feet in length, funnel-shaped at each end, and the edges formed or bound with caoutchouc, so that, when stood on end and pressed firmly down, there may be a water-tight joint. This instrument placed over the grating of any bell-trap so as to embrace it fully, and filled with water, the pressure will be sufficient to clear away any ordinary obstruction from the trap, and render it unnecessary to leave the trap loose. Such an apparatus may be applied by any maid-servant, and to any sink in or about a house, wherever, it must be added, there is clear height enough for it to be placed upright, though it is capable of being articulated to bend in some slight degree; and it may be made telescope fashion, to give the means of increasing the pressure if need be.—*Ibid.*

SEA-SIDE NUISANCES.

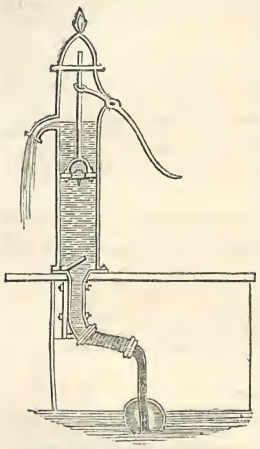
The inhabitants of, and visitors to, many of our sea-side watering-places are often exposed to annoyance, and sometimes to injury, from the discharge of the town drainage upon the much-frequented sea-beach. Cast-iron mains are commonly used at these places to conduct the soilage from the sewers and drains a little way out from the land, and these are commonly allowed to terminate at half-tide level or thereabouts, so that they are for half their time discharging noisome and pestilential streams under the nostrils of those who betake themselves to the beach for air and exercise. But ladies, with books or with needle-work, and nurses with their charges, are apt to resort to the propped-up and clean-looking round iron pipes for the convenience they offer as seats; and as they sit, they, and the children who play about them, inhale the poisonous gases which the soilage of the town emits, and many a family returns inland from the sea-side fevered with the stench at the sea-beach rather than invigorated by the sea-breezes. A few years ago the writer of these lines brought his family home to London, after a six weeks' residence at a sea-side watering-place, with all his children ill, and one of them seriously so, with fever, which resulted in the measles, brought on, he then believed, and still considers, by the cause alluded to. There were some of the town sewer pipes running out to half-tide distance

in the most accessible part of the beach, and upon some of these his children's nurse would seat herself day by day with the baby on her lap, and with the elder children playing about her, and with the children of other families similarly exposed to the same danger.—*Ibid.*

PATENT FLOATING FILTERING PUMP.

This new Pump, for cleansing and filtering unwholesome water, is the invention of Mr. S. Cheavins, of Donington, in Lincolnshire. Its advantage is to procure a pure and wholesome, as well as an abundant supply—results which, it is believed, have not hitherto been combined in a pump.

The inventor states that his Floating Filtering Pump has been tested in a tidal river, and is now used in the extensive brewery in Spalding, where it furnishes a constant and abundant supply of wholesome water, entirely free from the sand and filth which the old leaden pipes, by being placed nearly to the bottom of the water, were in the constant habit of contracting, thereby preventing the engine from obtaining a sufficient quantity of water for the supply of the brewery; and, as a still greater proof of its utility, it may be added, that it has been frequently surrounded with the weeds and rubbish carried down the river, and yet has never, in one single instance, failed to produce a copious supply. Water is sweeter and purer at the surface than it is at the bottom, and the Floating Filter totally ejects filth of every description, such as worms, &c., and all impurities of the smallest kind. The common pump, in consequence of the pipe descending within six or eight inches of the bottom, draws up with the pure water every pernicious sediment within its reach. On the other hand, the Floating Filter, by taking a supply of water within four or six inches of the surface, and rising and falling with the water, at once secures it from all sediment; and should there be any light filth floating in the same, the Filter totally ejects it, and will supply hundreds of tons of pure and wholesome water daily if required.



The importance of the purity of water for drinking was never better understood than in the present age of sanitary improvement. Now, the Patent Filter may be fixed to tanks and buts, so as to remove all apprehension of unwholesomeness in the water by any impurity drawn up with it. The Filter can also be attached, without difficulty, to pumps of the old construction.

We have seen Mr. Cheavins's Floating Filtering Pump at work, and can fully attest its successful operation.

WRIGHT'S PATENT VULCAN CHIMNEY-SWEEPING MACHINES.

The inefficacy of machinery for sweeping tortuous, angular, and irregular chimneys, has long been matter of complaint; and has, in some instances, led to the return to the employment of climbing-boys, which the application of machines was intended to supersede. The common failure of the machines hitherto used has been that they swept equally both ways, and left much of the soot in the chimneys.

The Patent Vulcan Sweeper is capable of contracting and expanding by the use of a cylinder or band of vulcanised india-rubber, upon which separate little brushes are so placed, that in ascending they easily press backwards, and leave the soot on the slopes, in the same manner as the common brush; whereas, on the return of the machine, the pressure on the little brushes being reversed, they stand firmly out and hold the head in the middle of the flue, sweeping all before it. The cylinder is fixed under a cap, and is protected from all external obstacles. The six little brushes form a round head, when all at liberty, but each one can dip down independently of the other when required to do so. There are, also, universal joints of a novel character, constructed with the vulcanised india-rubber; and, in cases where the chimney pots are very contracted, a small pilot brush, with very stiff whalebone to scratch off the hard soot, precedes the main one, and thus averts the necessity of its being squeezed through the narrow orifice, which is always attended with more or less danger to the pot, and requires so great a range of elasticity in the machine as to render it weak and inefficient in large flues. The Vulcan machines are employed in various ways, and of different sizes, to sweep stove-pipes, and every kind of chimney. They are manufactured and sold by Mr. Every, at Quarndon, near Derby.

PRECAUTIONS AGAINST CHOLERA.

Medical authorities are agreed that the remedies proper for the premonitory symptoms of cholera are the same as those found efficacious in common diarrhœa; that the most simple remedies will suffice, if given on the first manifestation of this symptom; and that the following, which are within the reach and management of every one, may be regarded as among the most useful, namely, 20 grains of opiate confection, mixed with two tablespoonfuls of peppermint-water, or with a little weak brandy-and-water, and repeated every three or four hours, or oftener, if the attack is severe, until the looseness of the bowels is stopped; or an ounce of the compound chalk mixture, with 10 or 15 grains of the aromatic confection, and from five to ten drops of laudanum, repeated in the same manner. From half a drachm to a drachm of tincture of catechu may be added to this last, if the attack is severe.

Half these quantities should be given to young persons under fifteen, and smaller doses to infants.

It is recommended to repeat these remedies night and morning, for some days after the looseness of the bowels has been stopped. But, in all cases, it is desirable, whenever practicable, that even in this earliest stage of the disorder, recourse should be had to medical advice on the spot.

Next in importance to the immediate employment of such remedies, is attention to proper diet and clothing. Every article of food which is known to favour a relaxed state of the bowels should, as far as possible, be avoided—such as every variety of green vegetable, whether cooked or not, as cucumber and salad. It will be important, also, to abstain from fruit of all kinds, though ripe, and even cooked, and whether dried or preserved. The most wholesome articles of vegetable diet are, well-baked, but not new, bread; rice, oatmeal, and good potatoes. Pickles should be avoided.

The diet should be solid rather than fluid; and those who have the means of choosing should live principally on animal food, as affording the most concentrated and invigorating diet; avoiding salted and smoked meats, pork, salted and shell-fish, cider, perry, ginger-beer, lemonade, acid liquors of all descriptions, and ardent spirits.

Great moderation, both in food and drink, is absolutely essential to safety *during the whole duration of the epidemic period.* One single act of indiscretion has, in many instances, been followed by a speedy and fatal attack.

On account of the intimate connexion between the external skin and the internal lining membrane of the bowels, warm clothing is of great importance. The wearing of flannel next the skin is therefore advisable. Recent experience on the Continent seems to show that it was useful to wear in the day-time a flannel bandage round the body, and this may become necessary in our own country during the damp and cold weather of the approaching season.

Particular attention should be paid to keeping the feet warm and dry; changing the clothes immediately after exposure to wet; and maintaining the sitting and bed-rooms well aired, dry, and warm.

It may be necessary to add a caution against the use of cold purgative medicines, such as salts, particularly Glauber salts, Epsom salts, and Seidlitz powders, which, taken *in any quantity*, in such a season, are dangerous. Drastic purgatives of all kinds should be avoided, such as senna, colocynth, and aloes, except under special medical direction.

If, notwithstanding these precautionary measures, a person is seized suddenly with cold, giddiness, nausea, vomiting, and cramps, under circumstances in which instant medical assistance cannot be procured, the concurrent testimony of the most experienced medical authority shows that the proper course is to get as soon as possible into a warm bed; to apply warmth by means of heated flannel, or bottles filled with hot water, or bags of heated camomile flowers, sand, bran, or salt, to the feet and along the spine; to have the extremities diligently rubbed; to apply a large poultice of mustard and vinegar over the region of the stomach, keeping it on fifteen or twenty minutes; and to take every half-hour a tea-spoonful of sal volatile in a little hot water, or a dessert-spoonful of brandy in a little hot water, or a wine-glass of hot wine whey, made by pouring a wine-glass of sherry into a tumbler of hot milk: in a word, to do everything practicable to procure a warm, general perspiration, until the arrival of the medical attendant, whose immediate care, under such circumstances, is indispensable.

It has not been deemed necessary or proper to give instructions for the treatment of the advanced stage, from the confident expectation that the proposed arrangements will supply medical attendance to all cases that may reach that condition, by which means the specific symptoms of each individual case will receive their appropriate treatment.

Whatever is preventive of cholera is equally preventive of typhus, and of every other epidemic and constantly recurring disease; and the attention of all classes is earnestly called to the striking and consoling fact, that, formidable as this malady is in its intense form and developed stage, there is no disease against which it is in our power to take such effectual precaution, both as collective communities and private individuals, by vigilant attention to it in its first or premonitory stage, and by the removal of those agencies which are known to promote the spread of all epidemic diseases.—*Abridged from the Report of the General Board of Health, to July,* 1849.

DISINFECTING PROCESS.

In all times of epidemic, it is desirable that householders should be warned of the necessity of looking to the state of the sinks, drains, cesspools, water-closets, &c., and that, as a means of prevention, those receptacles should be cleansed by pouring down them a solution of chloride of lime, and that this should be done simultaneously throughout the neighbourhood, in order to produce an effect on the public sewers; this mode of purifying being adopted at one time: thus, in 1849, it was publicly recommended, between the hours of nine and ten on each Saturday morning. This plan was carried out at Tottenham for several weeks, and here no case of cholera occurred, nor were the cases of diarrhœa more frequent or severe than usual at that season of the year. Chloride of lime may be had of any druggist. Two ounces is sufficient to be stirred into a pail-full of water, and costs only one penny.

ORIGIN OF THE "BILLS OF MORTALITY."

The Bills of Mortality were commenced in the reign of *Queen Elizabeth*, and ever since the year 1603 have been published by authority in London. In this respect the English metropolis stands alone; no weekly tables of the causes of the death of every inhabitant are published in the capital of any other European state. Various motives for the measure have been assigned; but the fact of continuous publication from a period anterior to the appearance of newspapers and gazettes, is remarkable and characteristic. It may be fairly referred to the natural inclination of the English people, when they are in trouble, to know the truth, and to see in figures the precise extent of their losses, although at times the sight might well make the courage of the bravest quail. On the Continent, "precautions" were used in publishing the mortality of cholera in 1849; and the deaths from all causes were not made known.

The parish-clerks of London, in the seventeenth century, when the plague was at its height, counted the deaths and reported the supposed causes; and the citizens, when the death-cart traversed the streets, anxiously studied the bill, surrounded by its gloomy symbolical border, announcing 8297 deaths in a week, out of a population of 600,000 Returns just published by order of the House of Commons, show that the total number of new houses built within the metropolitan police districts since January 1, 1839, up to September, 1849, amounts to 64,058; and the number of new streets formed to 1652, in length 200 miles. The increase of population from 1839 to 1849, within the said district, is estimated at 525,004; the total population of the metropolitan district being now about 2,336,960. In the hands of Price, Heberden, Willis, Bateman, and other statists, these records have disclosed the laws of mortality, and the causes of the insalubrity of the present cities.

STATISTICS OF METROPOLITAN BURIAL-GROUNDS.

In area, the parochial grounds take up 176 acres and 3-10ths; the Protestant Dissenters, 8 acres and 7-10ths; the Roman Catholics, 3-10ths of an acre; the Jews, 9 acres and 2-10ths; Swedish Chapel, 1-10th; undescribed, 10 acres and 9-10ths; private, 12 acres and 6-10ths. Total of intramural, 218 acres and 1-10th; total of new cemeteries, 260 acres and 5-10ths.

	Annual No. of burials exclusive of vault burials.	Average annual No. of burials per acre.	Highest No. of burials per acre in any ground.	Lowest No. of burials per acre in any ground.
Parochial grounds	35,747	191	2073	11
Protestant Dissenters	1715	197	1210	6
Roman Catholics	270	1013	1613	814
Jews	340	33	52	13
Swedish Chapel	10	108	—	—
Undescribed	2197	204	1109	5
Private	5112	405	2323	50
Total intramural	41,355	203	1080	46
Total of new cemeteries	3336	13	155	4
Vault burials	789	—	—	—

It is computed that it requires seven years for a layer of bodies to decay in the metropolis.—*Banfield and Weld's Statistical Companion.*

RURAL ECONOMY.

CHOICE OF FOWLS, ETC.

THE most important varieties of Fowl are the Cochin China, the Malay, the Spanish, the Dorking, the Old Sussex, the Hamburg, the Polish, the Columbian or Mongolian, the Bantam, and the Game Fowl.

The *Cochin China* is usually of a bright bay colour, darker above with a black horse-shoe mark upon the breast, wings borne tightly up, bearing erect and lively, whole form approaching to that of the Bustard, comb and wattles large and simple. This fowl was introduced into Great Britain some years back by Her Majesty, and it is truly a Royal bird. The hen is prolific to an extraordinary degree; "Bessy," when in the possession of the Queen, is stated to have laid an egg daily for 95 successive days—a degree of fecundity unrivalled by any other variety. These hens, also, repeatedly lay two, and even three eggs per day, for many days in succession. The flesh is excellent, but the bird is much too scarce and costly for general use. The cock is *game* to the last degree, capable of killing the most powerful game-cock in a few minutes.

The *Malay* is nearly as large as the Cochin China; but it is not a good bird in flesh. The hen does not lay so large an egg as her size would promise. The Malay fowl is, however, valuable for crossing with other varieties.

The *Spanish* is known by its jet black colour, large *toothed* comb and wattles, and white cheek or earpiece. This is one of the very best birds, it is fully climatised, and consequently hardy, and of beautiful appearance; possesses flesh of the best and whitest quality, and acquires it very rapidly: the hen lays a large egg, and is only surpassed in fecundity by the Cochin China.

The *Dorking* is remarkable for possessing five well-developed toes, and sometimes a rudimentary sixth, on each foot. This is a plump-bodied white-fleshed fowl, very good for table use: and the hen is tolerably prolific, but not equal in that respect to the Spanish. The *Sussex* has latterly, to a great degree, superseded the Dorking in popular estimation; in form and appearance; indeed, the birds are almost identical, save in colour—the Dorking being, when pure, usually of a speckled or *cuckoo* colour, and the Sussex being generally dark brown, sometimes relieved with white spangles. *White Dorkings* are prized by some, but they are delicate, and do not attain any size.

The *Hamburgh* and *Polish* resemble each other closely, are known by their large top-knots, and gay, or even gorgeous plumage. They are very ornamental, but not entitled to the notice of such as look chiefly or solely to pounds, shillings, and pence.

The *Columbian* or *Mongolian*, a native of South America, is a small and singularly beautiful bird, standing very erect. Its colour is a black ground, relieved about the head, neck, and wing coverts by numerous spangles of white, and here and there patches of brilliant green bronze. The comb of the cock is large, and the hen has one also; she has, too, a tuft of feathers below the bill, and two tufts springing, moustache-like, from the corners of the mouth. The egg laid by her is of extraordinary size, but she seldom lays more frequently than one every second day, and, during a considerable portion of the laying season, does not lay at all. As a *fancy fowl*, this may compete with the Cochin China; but its flesh is black and tough.

The *Bantam* is too well known to require description. The bay variety, with black spangles and naked legs, known as the "Sebright," is the most valuable. At the show in London, in February, 1847, three of these birds fetched the amazingly large price of fifty pounds and one shilling. The Bantam is singularly prolific, and the little egg is considered a delicacy peculiarly suited to the invalid, or to persons whose digestive powers have become impaired.

The *Game Fowl* are very prolific, are ready fatteners, and possess more delicate flesh than any other known variety. If they can be kept strictly apart, well and good; otherwise their pugnacity renders them unfit inmates of the general poultry-yard, as their individual value will by no means compensate their keepers for the injury they may do to other, and probably more valuable birds.

Her Majesty's poultry-keeper, Mr. Walters, made the experiment of crossing the Dorking with the Cochin China fowl, and a noble and valuable breed was the result. Mr. Burgess, of Pill-lane, Dublin, has the merit of having established an entirely new and valuable variety, known as "Burgess' Black," by a cross between Spanish and Malay, grafted with Dorking. The Sussex or Dorking makes a good cross with the Spanish. The Columbian and Sussex produces an admirable bird, possessing excellent shape, great fecundity, and retaining the characteristic of laying eggs nearly as large as those of a goose. The advice to the farmer on the subject of crossing is, that he keep as a standing stock, Spanish and Sussex; that he also have, if possible, a Cochin China cock, but in any case a Malay cock. In this manner, he will, by cautious admixture, gradually arrive at his desideratum. The Sussex possesses the highest perfection of form; the Spanish the best flesh, and laying qualities of a high character; while the Malay gives increased size, and if it be the Cochin China which is employed for that purpose, also increased fecundity. Let the reader follow this advice, and he will find himself amply compensated for any trouble or preliminary expense he may be at, by the large returns he will experience in the substantial and satisfactory form of *pounds, shillings*, and *pence*.

Most properly kept and properly fed fowl have, in January, begun to lay, and it is then advisable to set the eggs as early as you can collect a clutch. These early chickens will be ready the sooner to meet the market, and such as are to be kept will be the better able to endure, uninjured, the temperature of the ensuing winter.—*Abridged and selected from a paper by Mr. H. D. Richardson, in the Agricultural and Industrial Journal, No.* 1.

To make Hens Lay Perpetually.—Keep no roosters; give the hens a very small portion of fresh meat chopped up like sausage meat, say half an ounce a day to each hen, during the winter, or from the time insects disappear in the fall till they appear again in the spring. Never allow nest eggs. The only reason why hens do not lay all winter as freely as in summer is the want of animal food, which they get in summer in abundance, in the form of insects. The writer assures us that he has for several winters reduced his theory to practice, and proved its entire correctness.

Rules in Raising Poultry.—1. All young chickens, ducks, and turkeys should be kept under cover, out of the weather, during rainy seasons. 2. Twice or thrice a week, pepper, shallots, shives, or garlic should be mixed up with their food. 3. A small lump of assafœtida should be placed in the pan in which water is given them to drink. 4. Whenever they manifest disease, by the drooping of the wings, or any other outward sign of ill-health, a little assafœtida, broken into small lumps, should be mixed with their food. 5. Chickens which are kept from the dunghill while young seldom have the gapes; therefore it should be the object of those who have the charge of them so to confine the hens as to preclude their young from the range of barn or stable yards. 6. Should any of the chickens have the gapes, mix up small portions of assafœtida, rhubarb, and pepper, in fresh butter, and give each chicken as much of the mixture as will lie upon one-half the bowl of a small teaspoon. For the pip, the following treatment is judicious:—Take off the indurated covering on the point of the tongue, and give twice a day, for two or three days, a piece of garlic the size of a pea. If garlic cannot be obtained, onion, shallot, or shives will answer; but if neither of these be convenient, two grains of black pepper, to be given in fresh butter, will answer. 8. For the snuffles, the same remedies as for the gapes will be found highly curative; but, in addition to them, it will be necessary to melt a little assafœtida in fresh butter, and rub the chicken about the nostrils, taking care to clean them out. 9. Grown-up ducks are sometimes taken off rapidly by convulsions; in such cases, four drops of rhubarb and four grains of cayenne pepper, mixed in fresh butter, should be administered. Last year we lost several by this disease, and this year the same symptoms manifested themselves among them; but we arrested the malady without losing a single duck, by a dose of the above medicine to such as were ill. One of the ducks was at the time paralysed, but was thus saved.—*Canterbury Journal.*

Wasps' Nests.—These troublesome insects appeared during the past year in great numbers. It is not always possible completely to demolish the nest. The following contrivance for entrapping the stragglers will be found useful. Bury a wine bottle in the ground, so that the mouth alone shall be uncovered. The experiment will be the surer if a small quantity of sugar and water, or honey, be left at the bottom of the vessel. The wasps will get into the bottle, and be unable to effect an exit; and in a short time it may be taken up chokefull of carcases.

Cure for Bee-Stings.—The only *positive* and *immediate* cure for a bee-sting we have ever heard of, that may be depended on in *all* cases, is tobacco. The manner of applying it is as follows:—Take ordinary fine-cut smoking or chewing tobacco, and lay a pinch of it in the hollow of your hand, and moisten it and work it over until the juice appears quite dark-coloured; then apply it to the part stung, rubbing in the juice, with the tobacco between your thumb and fingers, as with a sponge. As fast as the tobacco becomes dry, add a little moisture and continue to rub and press out the juice upon the inflamed spot during five or ten minutes; and, if applied soon after being stung, it will cure in *every* case.—*Miner's American Bee-Keeper's Manual.*

BUTTER-MAKING.

In the Valais, Dr. Forbes, the celebrated physician, assures us, Butter is preserved sweet, or, at least, perfectly fit for use, through the whole season, *without any admixture of salt*. The following is the way in which it is treated:—"A narrow deal board, not more than four or five inches wide, is fixed horizontally in an open place in the dairy; wooden pins, from two to three feet in length, are fixed in an upright position into this, their whole length projecting above its surface. As the butter is made it is placed daily around these pins (one at a time), beginning at the lower end, and in a mass not exceeding at first the width of the board. Every day, as more butter is made, it is added to the previous portion around the pin, the diameter of the growing mass being gradually enlarged upwards, until the upper surface overhangs the base to a considerable extent, like an inverted beehive. When one pin is filled, another is proceeded with in like manner, and so on. The exposed surface of these masses gets soon covered with a sort of hard film, which effectually excludes the access of the air; and this circumstance, with two others—viz. the complete expression of milk from the butter, and the unobstructed circulation of a cool mountain air through the *châlet*, will go far to explain how butter so treated can remain so long without becoming spoiled." Dr. Forbes also gives the following mode of preparing the winter store of butter, or what is called in the Valais and Piedmont *beurre cuit*, or boiled butter, which the Doctor considers much more advantageous to health and comfort than the cheap salt butter sold in England:—"Into a clean copper pan (better, no doubt, tinned) put any quantity of butter, say from twenty to forty pounds, and place it over a very gentle fire, so that it may melt slowly; and let the heat be so graduated that the melted mass does not come to the boil in less than about two hours. During all this time the butter must be frequently stirred, say once in five or ten minutes, so that the whole mass may be thoroughly intermixed, and the top and bottom change places from time to time. When the melted mass boils, the fire is to be so regulated as to *keep* the butter at a gentle boil for about two hours more; stirring being still continued, but not necessarily so frequent as before. The vessel is then to be removed from the fire, and set aside to cool and settle, still gradually; this process of cooling being supposed also to require about two hours. The melted mass is then, while still quite liquid, to be carefully poured into the crock or jar in which it is to be kept. In the process of cooling there is deposited a whitish cheesy sediment proportioned to the quantity of butter, which is to be carefully prevented from intermixture with the preserved butter. There are some variations in the process in the practice of different individuals, but everybody agrees in asserting that butter so preserved will last for years perfectly good, without any particular precautions being taken to keep it from the air, or without the slightest addition of salt."

To Correct Sourness in Milk, Cream, and Bread.—It is not generally known that the sourness of milk and cream may be *immediately* corrected by the addition of a small quantity of the common carbonate of magnesia, in powder. Half a teaspoonful (about equal to 4 grains) may be added to a pint of milk or cream, if only slightly sour; a larger quantity in proportion to the degree of sourness. From two to three grains may be added to every pound of flour to prevent sourness in bread—so injurious to health. Carbonate of soda is sometimes employed for the same purpose, but it communicates a very unpleasant flavour to the bread; and, in the case of milk or cream, is worse than the disease.

TO CURE HAMS.

Westphalia Hams.—Get the hams cut in the shape of Westphalias, long, narrow, and pointed at the end, and put them under a board, heavily pressed down, to flatten them. About four days after killed, rub them with common rough salt, particularly about the hip-bone and knuckle joints. After a day and a night, remove the salt, dry the hams with a coarse cloth, and rub into each 1 oz. saltpetre powdered finely, and let it lie for 24 hours. Then mix powdered saltpetre, 1 oz.; common salt, ¾ lb.; bay salt, ¼ lb; coarse sugar, 1 lb.: make them hot in a pan—but be careful not to melt them—rub them well in while hot, all over the fleshy and rind sides, and finish with half a pound more common salt. Let the hams lie thus until a brine appears, strew bay-leaves both under and over, turn them every day, and rub them and baste them with the brine for three weeks; then take them out of pickle, and soak them in cold spring water for twenty-four hours; let them drain; wipe them with a cloth; rub them with coagulated pigs' blood, and put them to smoke for a week, well smothered. Or, a sort of Westphalia flavouring may be made of 100 parts of water, 4 of salt, 2 of brown sugar, 1 of Barbadoes tar, and 1 of spirit of wine. After it has been well mixed, and stood for several days, 3 table-spoonfuls may be mixed with the salt necessary to cure a ham.

Westmoreland Hams.—Procure a leg of pork, about 20 lb. weight; rub it well

with 3 oz. saltpetre, and let it lie 14 hours. Then mix stale porter or beer, 2 qts.; common salt, 2 lb.; coarse sugar, 2 lb.; bay salt, pounded, 1 lb.: boil and skim it well, and pour it hot over the meat. In this pickle the meat must remain one month, being rubbed and turned at least every other day. Then take it out, rub it dry, and roll it in malt-dust, or oatmeal; smoke the ham three weeks, and hang it in a dry but not warm room.

Warwickshire Hams.—Rub the leg of pork with 2 oz. powdered saltpetre, particularly about the hip-joint, and let it lie 24 hours. Then mix soft water, 1 gallon; pale dried malt, 1 peck; sugar or treacle, 1 lb.; bay salt, bruised, 1½ lb.; common salt, 2½ lb.; shalots or onions, sliced, 3 oz. Boil together ten minutes; skim the pickle; pour it hot over the meat, and let the grains remain until they begin to be sticky, when they may be drained in a sieve, and removed. Keep the ham covered with this pickle for three weeks, and turned and rubbed every day for three weeks, when it may be taken out, dried with cloths, and smoked three weeks or a month. Put the ham into a box with malt-dust, and cover from the air with sand dried in an oven. The three preceding receipts are from "The Whole Art of Pickling, Curing, and Smoking Meat and Fish," by James Robinson, eighteen years a practical curer.

Beef Pickle, à la Garrick. (*Rel.*)—Take 20 lb. of salt, ¾ lb. saltpetre, 4 cakes sal prunella, 2 lb. moist sugar, and 2 cloves of garlic. Pound and mix all together, rub with it the meat, cover it for about a week, rubbing and turning it every other day.

WINE FROM THE RHUBARB STALK.

Mr. Roberts, of Edinburgh, has appended to the fifth edition of his "British Wine-maker and Domestic Brewer," a Supplement on the Rhubarb Plant, showing it to be a basis nearly as valuable as that of the Grape for producing Champagne, Hock, Madeira, and Constantia. If sweet wine be required, six pounds weight of stalk to a gallon of water will be a proper proportion; but if a dry wine, to imitate Hock, Vin Grave, &c., is wished, more than double that weight will be necessary. The rhubarb should be used as soon after being cut as possible; and if it be of superior quality, the stalks, when ground or grated, and thoroughly pressed, will yield about eighty per cent. of juice; so that, by using 13 pounds, we should have rather more than 10 pounds of juice, and by adding one gallon of water to every 13 lb. of rhubarb stalk, when pressed, we should have two gallons of juice and water; viz. ten pounds of rhubarb juice giving one gallon, and 10 lb. of water giving one gallon. This mixture, made with 13 lb. of rhubarb stalk to the gallon, will take about 3¼ lb. of sugar to each gallon, which should be the finest East India or crushed sugar; the sugar giving an excess in quantity of 1¾ pint to each gallon.

The requisite implements and utensils are a small apple-mill, a fermenting tub, a cask of the same description, but less in size (say 18-gallon), with two or three tap-holes on a line in the front, and near the bottom; the top being taken out, and a flat circular slab of wood, with a few perforated holes, made to fit the interior. This slab, with one or two half-hundredweights placed on it, is to act the pulp-press. Next will be required a sherry quarter-cask, capable of containing about 28 gallons; two tubs, similar to washing-tubs, each to hold 15 gallons—one to receive the pulp from the mill, the other to receive the juice from the press: a hair sieve and stand complete the utensils.

Assuming the quantity of Hock to be made is 27 gallons, with two additional gallons for casking, the weight of rhubarb stalk required will be 156 lb., to be ground in the apple-mill, the pulp running into a tub placed under the spout, and then put into the small cask or press. This press is also placed on a stand, so as to admit the other tub under it to receive the pressed juice which flows from the tap-holes. The juice is then strained through a sieve into the fermenting-tub. Meanwhile, the slab with the weights upon it is put on the pulp in the press, and the pressed juice thus procured strained and added to the former; and in an hour or so the corks may be replaced in the tap-holes, and the slab and weights removed.

The juice which has been strained into the fermenting-tub will measure about 12 gallons. Twelve gallons of water, if possible at the heat of 80° to 100°, are to be poured on the pressed pulp in the small cask or press, the whole thoroughly agitated, and then allowed to remain eight or ten hours, in order to extract what value may have been left in the pulp; after which this liquor is to be drawn off, and added to the juice in the fermenting-tub. The pulp is to undergo a second pressing with the slab and weights, and the pressed liquor is to be added to the former juice, which should measure now, in the whole, 24 gallons.

Eighty-four pounds of sugar—the whiter the better—are next to be put to the juice and water in the fermenting-tub, which will cause it to measure about 29 gallons. With this sugar should be put in three-quarters of a pound of tartaric acid, thoroughly dissolved in a little boiling water; and the whole should be then well mixed together.

The fermenting-tub, containing the *must*, is to be placed in a warm situation, and the *must* weighed with a saccharometer, which will indicate perhaps a degree or so more or less than the required standard, 26, *i. e.* 130. If more, a little boiling water may be added to reduce it; if less, as much sugar as will bring the *must* up to that point.

It is then allowed to ferment until it is reduced in gravity to 80 or 90, being in the interval carefully stirred and weighed. When reduced to 80 or 90, it is to be casked in a newly-emptied sherry quarter-cask, of 27 or 28 gallons. There will be enough *must* to fill the cask at first, and to continue filling it during the time it remains unbunged; the cask being placed obliquely upon a stand, with a dish under it. During the time the wine is fermenting, and before it is bunged down, it should be tried with the saccharometer once a week; and when reduced to one-half its original gravity, say 65, the cask may be bunged down, and the wine allowed to remain undisturbed until October or November, supposing it to have been made in May or June. By this time it should be reduced to 30 of gravity. If, however, at any of these examinations it is found that the wine has attenuated below 30 before the period just mentioned, it must be immediately racked off, to prevent its being too much reduced.

It is then advisable to get another newly-emptied sherry quarter-cask, and to fumigate it twice at about an hour's interval; 2½ gallons of the finest Somersetshire cider, with half a gallon of Bucellas wine, are to be put into the cask, to be bunged and well rolled about to incorporate the fumes of the brimstone with the contents. The clear portion of the wine is then to be racked into it, leaving room for the finings, usually consisting of a little isinglass dissolved in sour wine.

A very delicious and cheap wine may be made from rhubarb stalks 6½ lb. to every gallon of water, and 3½ lb. of sugar to each gallon of juice and water. The rhubarb is ground to a pulp in an apple-mill, and the juice then pressed out of it; it is worked as other home wines, and fined by adding 4 lb. of sugar-candy, dissolved.

Cold Cream.—Warm gently together four ounces of oil of almonds and one ounce of white wax, gradually adding four ounces of rose-water. This will make good cold cream, whereas that sold in the shops is usually nothing more than lard beat up with rose-water.

COOKERY.*

White Haricot Beans.—Nothing is so cheap or so solid food as haricot beans. Get a pint of fine white beans, called the dwarf; put them into half a gallon of cold soft water, with one ounce of butter; they take about three hours to cook, and should simmer very slowly; drain them and put them into a stewpan, with a little salt, pepper, chopped parsley, two ounces of butter, and the juice of a lemon, place on the fire for a few minutes, stir well, and serve. The water in which it is boiled will not make a bad soup by frying four onions in butter in a stewpan, adding a little flour, then the water poured over, and a slice of toasted bread cut in pieces, and served in a tureen. Should the water in boiling reduce too fast, add a little more. The longer sort requires to be soaked a few hours before boiling.

Irish way of Boiling Potatoes.—In Ireland, where this root has been for so long a period the chief nourishment of the people, and where it takes the place of bread and other more substantial food, it is cooked so that it may have, as they call it, a bone in it; that is, that the middle of it should not be quite cooked. They are done thus:—Put a gallon of water with two ounces of salt in a large iron pot, boil for about ten minutes, or until the skin is loose, pour the water out of the pot, put a dry cloth on the top of the potatoes, and place it on the side of the fire without water for about twenty minutes, and serve. In Ireland turf is the principal article of fuel, which is burnt on the flat hearth: a little of it is generally scraped up round the pot so as to keep a gradual heat; by this plan the potato is both boiled and baked. Even in those families where such a common art of civilised life as cooking ought to have made some progress, the only improvement they have upon this plan is, that they leave potatoes in the dry pot longer, by which they lose the *bone*. They are also served up with their skins (jackets) on, and a small plate is placed by the side of each guest.

Beetroot.—Take two nice young boiled beetroots, which will require about from two to three hours to simmer in plenty of boiling water; peel when cold, cut in slanting direction, so as to make oval pieces; peel and cut in small dice two middling-sized onions, put in a pan, with two ounces of butter, fry white, stirring continually with a spoon; add a spoonful of flour, and enough milk to make a nice thickish sauce, add to it three saltspoonfuls of salt, four of sugar, one of pepper, a spoonful of good vinegar, and boil a few minutes; put in the slices to simmer for about twenty minutes, have ready some mashed potatoes, with which make a neat border in your dish one inch high, then put the beetroot and sauce, highly seasoned, in the centre, and serve.

Teal, a new method.—Procure four, draw them, then put half a pound of butter upon a plate, with a little pepper, grated nutmeg, parsley, a spoonful of grated crust of bread, the juice of a lemon, and the liver of the teal, mix well together, and with it fill the interior of the teal; cover them with slices of lemon, fold in thin slices of bacon, then in paper, and roast twenty minutes before a sharp fire; take off the paper, brown the bacon, dress them upon a slice of thick toast, letting the butter from the teal run over it, and serve very hot.

Pig's Cheek, a new method.—Procure a pig's cheek, nicely pickled, boil well until it feels very tender; tie half a pint of split peas in a cloth, put them into a stewpan of boiling water, boil about half an hour, take them out, pass through a hair sieve, put them into a stewpan, with an ounce of butter, a little pepper and salt, and four eggs, stir them over the fire until the eggs are partially set, then spread it over the pig's cheek, egg with a paste-brush, sprinkle bread-crumbs over, place in the oven ten minutes, brown it with the salamander, and serve.

Melted Butter.—Put into a stewpan two ounces of butter, not too hard, also a good tablespoonful of flour, mix both well with a wooden spoon, without putting it on the fire; when forming a smooth paste, add to it a little better than half a pint of water; season with a teaspoonful of salt, not too full, the sixth part that of pepper; set it on the fire, stir round continually until on the point of boiling; take it off, add a teaspoonful of brown vinegar, then add one ounce more of fresh butter, which stir in your sauce till melted, then use where required; a little nutmeg grated may be introduced; it ought, when done, to adhere lightly to the back of the spoon, but transparent, not pasty; it may also, if required, be passed through a tammy or sieve. If wanted plainer, the last butter may be omitted.

Fritadella (twenty receipts in one).—Put half a pound of crumb of bread to soak in a pint of cold water; take the same quantity of any kind of roast or boiled meat, with a little fat, chop it up like sausage meat; then put your bread in a clean cloth, press it to extract all the water; put into a stewpan two ounces of butter, a tablespoonful of chopped onions, fry for two minutes, then add the bread, stir with a wooden spoon until rather dry, then add the meat, season with a teaspoonful of salt, half the same of pepper, a little grated nutmeg, the same of lemon peel, stir continually until very hot; then add two eggs, one at a time, well mix together, and pour on a dish to get cold. Then take a piece as big as a small egg, and roll it to the same shape, flatten it a little, egg and bread-crumb over, keeping the shape, do all of it the same way, then put into a *sauté*-pan a quarter of a pound of lard, or clean fat, or oil; when hot, but not too much so, put in the pieces, and *sauté* a very nice yellow colour, and serve very hot, plain, on a napkin, or on a border of mashed potatoes, with any sauce or garniture you fancy. These can be made with the remains of any kind of meat, poultry, game, fish, and even vegetables; hard eggs or cold mashed potatoes may be introduced in small quantities, and may be fried instead of *sauté*, in which case put about two pounds of fat in the frying-pan, and if care is used it will do several times. This is an entirely new and very economical and palatable dish, and fit for all seasons, and if once tried would be often repeated; the only expense attending it is the purchase of a small wire sieve for the bread-crumbs. The reason it is called twenty receipts in one is, that all kinds of food may be used for it—even shrimps, oysters, and lobsters.

Batter for Fritters.—Take half a pound of flour, one ounce of butter (which melt), the whites of three eggs, well beaten, half a glass of beer, and enough water to make a thick batter.

New Mode of Making Coffee.—Choose the coffee of a very nice brown colour, but not black (which would denote that it was burnt, and impart a bitter flavour); grind it at home if possible, as you may then depend upon the quality; if ground in any quantity, keep it in a jar hermetically sealed. To *make a pint*, put two ounces into a stewpan, or small iron or tin saucepan, which set dry upon a moderate fire, stirring the coffee round with a wooden spoon continually until it is quite hot through, but not in the least burnt: should the fire be very fierce, warm it by degrees, taking it off every now and then until hot (which would not be more than two minutes), when pour over a pint of boiling water, cover close, and let it stand by the side of the fire (but not to boil) for five minutes, when strain it through a cloth or a piece of thick gauze, rince out the stewpan, pour the coffee (which will be quite clear) back into it, place it upon the fire, and, when nearly boiling, serve with hot milk if for breakfast, but with a drop of cold

* From Soyer's "Modern Housewife."

milk or cream if for dinner. The foregoing proportions would make coffee good enough for any person, but more or less coffee could be used if required; the cloth through which it is passed should be immediately washed and put by for the next occasion. A hundred cups of coffee could be made as here directed in half an hour, by procuring a pan sufficiently large, and using the proper proportions of coffee and water, passing it afterwards through a large cloth or jelly-bag.

How to Make a Delicious Cup of Tea.—Before pouring in any water, the tea-pot, with the tea in it, should be placed in the oven till hot, or heated by means of a spirit-lamp, or in front of the fire (not too close, of course), and the pot then filled with boiling water. The result will be, in about a minute, a most delicious cup of tea, much superior to that drawn in the ordinary way.

Rhubarb Jam. (*Manchester Receipt.*)—Boil gently, for three hours, an equal weight of fine sugar and rhubarb-stalk, with the juice and grated rind of a lemon to each pound of the fruit. When the true flavour of the rhubarb is much liked, the lemon-peel should be omitted. A very good jam may be made with six ounces less of sugar to the pound, by boiling the rhubarb gently for an hour before it is added.

Coffee, French Fashion.—To a pint of coffee, made as before directed, add a pint of boiling milk, warm both together until nearly boiling, and serve.

NEW KITCHEN IMPLEMENTS.

M. Soyer, in his "Modern Housewife," (lately published), describes a Magic Lamp Stove, with which may be cooked, *on the breakfast-table*, a cutlet, ham, or bacon, or eggs may be poached. In this new and portable apparatus, the heat is given by vapour of spirit of wine passing through a flame: it will cook cutlets, or boil water, in as short a time as the best charcoal; with the *sauté-pan* everything can be cooked as on a charcoal fire; and with a small saucepan anything that may be required in the room of an invalid, where the heat of a fire would not be allowed. In place of the kitchen-range, the hot-plate, and the charcoal stove, M. Soyer recommends a Gas Stove, which is very economical; the fire being left to go out after dinner, and some days not being even lit, it is exceedingly clean. This new stove is placed in the middle of the kitchen: it combines a roasting fire, circulating hot-water boiler, oven, and hot plate, all heated by one fire; the boiler heats the water at the top of the house for the baths, and which can be laid on into any room; the advantage is that it gives more room in the kitchen, in being able to walk all round it; there are also different degrees of heat on the hot plate, and room for the bain-marie pan: the smoke goes under the floor into the old chimney. It is made by Messrs. Bramah and Prestage, of Piccadilly. It could be fitted with a steam-boiler if required, and would be valuable in hotels and taverns: in a cottage, the linen could be dried around it without danger from fire; and it also cures smoky chimneys. There is very little heat arising from it.

HOW TO FIT UP A KITCHEN.

Among other improvements in kitchen fittings, the dressers are made with drawers and slides, which is very convenient, as anything dirty may be placed upon them, and the cloth be thus saved. The rail above contains all the copper stewpans. Another dresser is used for placing the dishes on when sending up the dinner: it has the covers over it; and underneath, the dripping pan, frying-pan, gridiron—so that nothing is hid from sight, therefore they cannot but be clean. This is a good plan; for those mysterious closets are often found full of dirt, broken plates, old towels, and everything that is wanted to be hidden from sight. There is a little scullery; it is supplied with hot and cold water, and has a sink, in which are washed the plates, dishes, coppers, &c., or anything else; so that all dirt is kept out of the kitchen; but this is every bit as clean as the kitchen. The larder is paved and lined with slate: the window, which is protected by wire, opens to the north. Under the window is the pastry-slab, with ice-drawer under that. In one corner is the meat block and table, with scales to weigh all that comes into the larder. Here is the safe, with a sliding door on pulley, and in which are the vegetable bins; and here, also, is one of Lings's patent ice-safes. The meat hangs from tin hooks. There are two boxes for powdered herbs of all kinds (Makepeaces), and also essences for confectionery. This is called the housewife's box.

The following stock of utensils is considered to be quite complete, and by no means too numerous:—8 copper stewpans, two larger ones holding one gallon and a half, and the next one gallon, the others smaller by degrees to one pint; 1 oval fish-kettle, holding about one gallon and a half—but if by chance you have a turbot, borrow a kettle from the fishmonger; 1 middle-sized braising-pan; 1 preserving-pan; 1 round bowl for beating whites of eggs; 2 sauté-pans; 1 omelette-pan; 1 frying-pan; 1 bain-marie; 6 saucepans for the sauce; 1 middle-sized tin pie-mould; 2 tin jelly-moulds; 1 tin flanc-mould for fruit; 1 freezing-pot, with every requisite; 2 baking-sheets; 1 gridiron; 1 small salamander: 1 colander-spoon; 1 bottle-jack; 2 spits; 1 dripping-pan; 1 screen; 1 sugar-pan; 2 soup-ladles; 8 copper spoons, two of them colanders; 2 wire baskets; 1 wire sieve; 2 hair sieves; 24 tartlet-pans; 2 tammies; 1 jelly-bag; 12 wooden spoons; 2 paste-brushes; 1 pair of scissors; 2 kitchen-knives; 6 larding-needles; 1 packing-needle; 1 box of vegetable-cutters; 1 box of paste-cutters; 1 meat saw; 1 cutlet-chopper; 1 meat-chopper; 6 meat-hooks, tinned; 1 rolling-pin; 8 kitchen basins; 6 china pie-dishes; 6 earthen bowls for soups and gravies; 4 kitchen table-cloths; 18 rubbers; 12 fish napkins; 6 pudding-cloths; 4 round towels. These utensils, no doubt, appear very numerous, but, at the same time, they are no more than are required; and it is only the first nine articles which are rather expensive: the others can be had at the cost of a few shillings. The linen should be placed in the presses every week, and an exact account kept of it; for it is only by so doing that so small a quantity can be kept in use. The stock consists of 12 pairs of sheets; 10 ditto pillow-cases; 3 dozen of napkins; 2 dozen and a half of various-sized table-cloths, including breakfast, dinner, &c., 6 servants' table-cloths; 3 dozen towels; 6 round towels; 3 dozen kitchen rubbers; 2 dozen napkins for fish, vegetables, and fruits; 6 pudding cloths; 2 dozen damask d'oylies; 1 dozen Berlin wool ditto. Occasionally in the wash are the cover of the carpet, the anti-macassars, and the netted window curtains. Of glass and china, provide the following; they should be counted every month, and the broken ones replaced; 3 dozen wine-glasses; 2 dozen champagne ditto; 2 dozen claret ditto; 3 dozen goblets; 6 water carafes; 6 decanters; 1 liqueur stand, 12 liqueur glasses; 2 glass jugs; 1 celery glass; 1 trifle dish; 8 dessert dishes.—China, 1 full dinner service; 1 common set for kitchen; 1 common tea service for kitchen; 1 good tea service; 1 breakfast service; 1 good dessert service.—The following is the list of Plate: 3 dozen of prongs; 2 dozen of table-spoons; 1 and a half ditto of dessert-spoons; 1 and a half ditto of dessert-forks; 2 ditto of tea-spoons; 6 salt-spoons; 1 cheese knife; 4 butter-knives; 1 asparagus-tongs, 2 sugar tongs; 1 soup-ladle; 4 sauce ladles; 2 gravy-spoons; 2 sugar-ladles; 2 salvers; 1 bread-basket; 4 candlesticks; 1 hot-water dish for haunch of mutton.

GENERAL POSTAL REGULATIONS, &c.

RATES OF POSTAGE.—All letters from one part of Great Britain to another (including the Local Penny Posts and the London Twopenny Post) are charged, if prepaid, and not

Exceeding half an ounce .. .. 1d.
Exceeding half an ounce, and not exceeding one ounce .. 2d.

and so on, at the rate of 2d. for every additional ounce or fraction of an ounce. Unpaid and unstamped letters are charged double postage on delivery.

HOURS OF POSTING FOR THE EVENING MAILS.—The Receiving-Houses close at 5 30 P.M.; but letters are received for the evening's dispatch until 6 P.M., if an extra penny stamp is affixed. The Branch Post-offices at Charing Cross, Old Cavendish-street, and Stones-end, Southwark, receive letters until 6 P.M., and until ½ to 7 P.M. by affixing an additional penny stamp. At the Branch Post-Office in Lombard-street, the box remains open without additional fee until 6 P.M., and until 7 P.M. by affixing a penny stamp. At the General Post-Office in St. Martin's-le-Grand until 6, free; and until 7, by payment of the extra charge as at Lombard-street. From 7 to half-past 7 P.M., letters may be posted at the General Post-office upon payment of a fee of sixpence each, which must, as well as the postage, be pre-paid. Letters intended to pass by outward mails to foreign parts must be posted at the above hours.—N.B. Newspapers for the evening mails must be put into the Receiving-Houses before 5 P.M., the Branch offices before 5 30, or General Post Office before 6 P.M. From 6 P.M. to 7 30, on payment of one-halfpenny late fee; except newspapers for foreign parts, which must be posted at the General Post-Office and Branch Offices before 6 P.M., and at the Receiving-Houses before 5 P.M.

MORNING MAILS are forwarded to most of the principal towns in England and Wales, and to all parts of Ireland and Scotland, for which the letter-boxes at the Receiving-Houses will be open till 7 A.M. for newspapers, and ½ to 8 A.M. for letters; and at the Branch Offices, Charing-cross, Old Cavendish-street, and the Borough, for newspapers until half-past 7 A.M., and for letters until 8 A.M. At the General Post-Office and the Branch Office in Lombard-street, the boxes will close for newspapers at a quarter before 8 A.M., and for letters at half-past 8 A.M.

ANY SINGLE BOOK OR PAMPHLET can now be sent through the Post-Office to any part of the United Kingdom if not exceeding 16 oz. in weight, and open at both ends, by affixing six postage stamps; if above 16 oz. 1s., and 6d. for every additional pound or fraction of a pound. The Postmaster-General does not guarantee the delivery of books and pamphlets with the same accuracy and regularity as newspapers and letters, but in no case will the delivery be delayed more than 24 hours after the usual post.

BRITISH AND COLONIAL PAPERS between British Colonies, without passing through the United Kingdom, to be free; except that 1d. may be allowed as a gratuity to the master of the vessel conveying them.

NEWSPAPERS, BRITISH, FOREIGN, OR COLONIAL, passing between British or Colonial and Foreign ports, and through the British post, to pay 2d.; if not through the British post, 1d.

NEW POSTAGE STAMPS intended principally for the pre-payment of foreign letters have been issued. They are of the value of one shilling each, the colour being green, and the form octagonal, and another of the value of tenpence of a brown colour. These stamps may be used for inland as well as foreign postage, but they are chiefly intended for the postage of letters to the United States, India, China, the West Indies, New South Wales, and New Zealand, &c

PACKAGES which in length, breadth, or width exceed twenty-four inches, cannot be forwarded by post between any places within the United Kingdom; except, however, petitions or addresses to her Majesty, or petitions to either House of Parliament forwarded to any Member of either House, or printed votes or proceedings of Parliament, or letters to or from any Government offices or departments.

MONEY ORDERS.—With a view to simplicity and economy in the accounts of the Money Order Office, it has been found necessary to lay down the following rules:—1. Every money order issued on or after the 6th October, 1848, must be presented for payment before the end of the second calendar month after that in which it was issued (for instance, if issued in October, it must be presented for payment before the end of December), otherwise a new order will be necessary, for which a second commission must be paid. 2. As already notified to the public, if an order be not presented for payment before the end of the twelfth calendar month after that in which it was issued (for instance, if issued in October and not presented before the end of the next October), the money will not be paid at all. 3. As, after once paying a money order, by whomsoever presented, the office will not be liable to any further claim, the public are strictly cautioned *a*. To take all means to prevent the loss of the money order. *b*. Never to send a money order in the same letter with the information required on payment thereof. *c*. To be careful, on taking out a money order, to state correctly the Christian name as well as the surname of the person in whose favour it is to be drawn. *d*. To see that the name, address, and occupation of the person taking out the money order are correctly known to the person in whose favour it is drawn. 4. Neglect of these instructions will lead to delay and trouble in obtaining payment, and even risk the loss of the money. These instructions, together with some others of minor importance, will be found printed on every money order.

CONSULATE AND PASSPORT OFFICES.

AUSTRIA.—Embassy, 7, Chandos-street, Cavendish-square, between 12 and 2.

BELGIUM.—Legation, 9 A, Weymouth-street, Portland-place, between 11 and 3; delivered next day between 11 and 2, gratis; at the Consul's office, 3, Copthall-court, between 10 and 4—fee 5s.

BAVARIA.—The Minister, 3, Hill-street, Berkeley-square, when personally known to him; or at the Consul Office, 33½, Great St. Helen's.

BRAZIL.—Legation, 41, York-street, Portman-square, between 12 and 2, gratis.

DENMARK.—6, Warnford-court, between 10 and 4—fee 10s. 6d.; under special circumstances at the Embassy, 2, Wilton-terrace, Belgrave-square.

FRANCE.—French passport-office, 6, Poland-street, Oxford-street, from 12 to 5; delivered immediately on personal application, and payment of 5s; also at the Consul's office, 3, Copthall-buildings, between 12 and 4—fee 5s. One passport will include a whole family and servants.

NAPLES AND SICILY.—Passport-office, 15, Princes-street, Cavendish-square, Mondays and Thursdays, between 10 and 12; delivered following day between 2 and 3, gratis.

PORTUGAL.—Embassy, 57, Upper Seymour-street, Portman-square, between 11 and 4, delivered following day; also at Consul's office, 5, Jeffrey's-square, St. Mary-axe, from 10 to 4.

PRUSSIA.—106, Fenchurch-street, between 10 and 6—fee 7s.

RUSSIA.—2, Winchester-buildings, between 10 and 4; delivered following day—fee 6s. 4d.

THE QUEEN AND ROYAL FAMILY.

THE QUEEN.—VICTORIA, of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith, was born May 24th, 1819; succeeded to the throne, June 20th, 1837, on the death of her uncle, King William IV.; crowned, June 28th, 1838, and married, February 10th, 1840, to his Royal Highness Prince Albert. Her Majesty is the only daughter of his late Royal Highness Edward Duke of Kent, son of King George III.

His Royal Highness Francis Albert Augustus Charles Emanuel Busici, DUKE OF SAXE, PRINCE OF COBURG AND GOTHA, K.G., Consort of her Majesty, born August 26th, 1819.

Her Royal Highness Victoria Adelaide Mary Louisa, PRINCESS ROYAL, born November 21st, 1840.

His Royal Highness Albert Edward, PRINCE OF WALES, born November 9th, 1841.

Her Royal Highness Alice Maud, born April 25th, 1843.

His Royal Highness Alfred Ernest Albert, born August 6th, 1844.

Her Royal Highness Princess Helena Augusta Victoria, born May 25, 1846.

Her Royal Highness Princess Louisa Carolina Alberta, born March 18, 1848.

THE QUEEN DOWAGER.—Amelia Adelaide Louisa Theresa, sister to the reigning Duke of Saxe Meiningen, born August 13th, 1792; married July 11th, 1818; crowned September 8th, 1831.

Ernest Augustus, DUKE OF CUMBERLAND, in Great Britain, and KING OF HANOVER, uncle to her Majesty, born June 5th, 1771, married, August 29th, 1815. Issue, George Frederick.

Adolphus Frederick, DUKE OF CAMBRIDGE, uncle to her Majesty, born February 24th, 1774; married, May 2nd, 1818, her Serene Highness Augusta Wilhelmina Louisa, youngest daughter of Frederick, Landgrave of Hesse. Issue, three children.

MARY, Aunt to her Majesty, born April 25th, 1776; married, July 22nd, 1816, her cousin, the Duke of Gloucester, deceased.

Victoria Mary Louisa, DUCHESS OF KENT, born August 17th, 1786; married, in 1818, the Duke of Kent (who died January 23rd, 1820); her Majesty's mother.

Augusta Wilhelmina Louisa, DUCHESS OF CAMBRIDGE, niece of the Landgrave of Hesse, born July 25th, 1795; married, in 1818, the Duke of Cambridge, by whom she has issue, George William, Augusta Caroline, and Mary Adelaide.

George Frederick Alexander Charles Ernest Augustus, K.G., only child of the King of Hanover, Prince Royal of Hanover, cousin to her Majesty; born May 27th, 1819; married, February, 1843, Princess Mary of Saxe Altenberg, and has a son.

George Frederick William Charles, K.G., son of the Duke of Cambridge, cousin to her Majesty, born March 26th, 1819.

Augusta Caroline Charlotte Elizabeth Mary Sophia Louisa, daughter of the Duke of Cambridge, and cousin to her Majesty, born July 19th, 1822; married, June 28th, 1843, Frederick, Hereditary Grand Duke of Mecklenburg Strelitz.

Mary Adelaide Wilhelmina Elizabeth, daughter of the Duke of Cambridge, and cousin to her Majesty, born November 27th, 1833.

THE QUEEN'S HOUSEHOLD.

Lord Great Chamberlain	Lord Willoughby D'Eresby
Lord Steward	Earl Fortescue
Lord Chamberlain	Marquis of Breadalbane, K.T.
Vice-Chamberlain	Lord E. Howard
Master of the Horse	Duke of Norfolk
Clerk Marshal and Chief Equerry	Lord Alfred Paget
Treasurer of the Household	Lord Marcus Hill
Comptroller of the Household	Right. Hon. W. S. Lascelles
Lord High Almoner	Bishop of Oxford
Sub-Almoner	Rev. G. Goodenough, D.D.
Clerk of the Closet	Bishop of Chester
Master of the Buckhounds	Earl of Bessborough
Comptroller of Accounts	Sir William Martins
Master of the Household	Major-General Bowles
Captain of the Yeomen of the Guard	Marquis of Donegal
Captain of Gentlemen-at-Arms	Lord Foley
Lords in Waiting	Earl of Listowel, Lord Camoys, Lord Waterpark, Lord Elphinstone, Earl of Morley, Lord Byron, Lord Dufferin, Marquis of Ormonde
Mistress of the Robes	The Duchess of Sutherland
Ladies of the Bedchamber	Countess of Mount-Edgecumbe, Marchioness of Douro, Countess of Desart, Countess of Gainsboro', Countess of Charlemont, Viscountess Jocelyn, Viscountess Canning, Lady Portman
Extra Lady of the Bedchamber	Duchess of Norfolk.
Physicians	Charles Locock, M.D., Sir James Clark, Bart., and W. F. Chambers, M.D.
Surgeons	Sir B. Brodie, Bart., and R. Keate, Esq.

HER MAJESTY'S MINISTERS.

OF THE CABINET.

First Lord of the Treasury (Premier)	Lord John Russell
Lord Chancellor	Lord Cottenham
Lord President of the Council	The Marquis of Lansdowne
Lord Privy Seal	The Earl of Minto
Secretaries of State — Home	Sir George Grey, Bart.
Secretaries of State — Foreign	Lord Palmerston
Secretaries of State — Colonial	Earl Grey
Chancellor of the Exchequer	The Rt. Hon. Sir Charles Wood
President of the Board of Control	Sir J. C. Hobhouse
President of the Board of Trade	Rt. Hon. H. Labouchere
First Lord of the Admiralty	The Right Hon. Sir F. Baring, Bart.
Chancellor of the Duchy of Lancaster	Lord Campbell
Chief Commissioner Woods and Forests	Earl of Carlisle
Postmaster-General	The Marquis of Clanricarde

IRELAND.

Lord Lieutenant	The Earl of Clarendon
Lord Chancellor	The Right Hon. M. Brady
Chief Secretary	The Right Hon. Sir W. Somerville, Bart.
Attorney-General	Right Hon. J. M. Monahan.
Solicitor-General	J. Hatchell, Esq.

SCOTLAND.

Lord High Constable	The Earl of Errol
Lord Privy Seal	Viscount Melville
Lord Advocate	Right Hon. A. Rutherford

GOVERNMENT OFFICES AND OFFICERS.

TREASURY,
WHITEHALL.

LORDS COMMISSIONERS.

Lord J. Russell, Sir Chas. Wood, Bart, H. Rich, Esq., R. M. Bellew, Esq., W. G. Craig, Esq.
Secretaries, the Right Hon. W. G. Hayter, H. Tufnel, Esq.
Assistant Secretary, Sir C. E. Trevelyan.
Principal Clerk, S. R. Leake, Esq.
Solicitor, G. Maule, Esq.

EXCHEQUER,
WHITEHALL-YARD.

Chancellor, the Right Hon. Sir Charles Wood, Bart.
Comptroller, Lord Monteagle
Assistant, A. Eden, Esq.
Chief Clerk, F. F. Ottey, Esq.
Accountant, G. S. Frederick, Esq.

HOME OFFICE,
WHITEHALL.

Secretary of State, Sir George Grey, Bart.
Under-Secretaries, G. C. Lewis, Esq., H. Waddington, Esq.
Chief Clerk, H. J. Knyvett, Esq.
Private Secretary, H. Brand, Esq.

FOREIGN OFFICE,
DOWNING-STREET.

Secretary of State, Lord Palmerston
Under-Secretaries Lord Eddisbury, H. U. Addington, Esq.
Chief Clerk, G. L. Conyngham, Esq.
Private Secretary, the Hon. Spencer Ponsonby

COLONIAL OFFICE,
DOWNING-STREET.

Secretary of State, Earl Grey
Under-Secretaries, B. Hawes, Esq., H. Merivale, Esq.
Assistant Secretary, T. F. Elliot, Esq.
Chief Clerk, Peter Smith, Esq.
Private Secretary, the Hon. H. C. Grey.

IRISH OFFICE,
18, GREAT QUEEN-STREET, WESTMINSTER.

Chief Secretary, the Right Hon. Sir W. M. Somerville, Bart.
Chief Clerk, George Trundle, Esq.
Assistant, Hon. S. D. Montague
Private Secretary, H. Meredyth, Esq.
Counsel, E. Batty, Esq.

BOARD OF TRADE,
WHITEHALL.

President, the Rt. Hon. H. Labouchere
Vice-President, Earl Granville. The Archbishop of Canterbury, the Cabinet Ministers, and the Right Hon. C. Arbuthnot.
Secretaries, G. R. Porter, Esq., Sir Denis Le Marchant, Bart.
Secretaries, Assistants, F. Lock, Esq., H. Hobart, Esq.
Private Secretary to the President, T. Baring, Esq.
Assistant Legal Secretary, Stafford H. Northcote, Esq.

BOARD OF CONTROL,
CANNON-ROW, WESTMINSTER.

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Secretaries, James Wilson, Esq., M.P., the Hon. John Elliot
Private Secretary, A. Hobhouse, Esq.
Solicitor, R. Groom, Esq.

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1 AND 2, SOMERSET-PLACE.

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President, the Right Hon. Mathew Talbot Baines.
Secretaries, George Nicholls, Esq., C.B., Lord Ebrington, M.P.
Assistant Secretaries, William Golden Lumley, Esq., Barrister-at-Law, and H. Fleming, Esq.
Inspectors, Edward Gulson, Esq., W. H. Toovey Hawley, Esq., Richard Hall, Esq., Barrister-at-Law, Robert Weale, Esq., Sir J. James Walsham, Bart., Alfred Austin, Esq., Barrister-at-Law, G. G. Wandisford Pigott, Esq, J. T. Graves, Esq., Barrister-at-Law, Andrew Doyle, Esq., Barrister-at-Law, J. Manwaring, Esq., H. B. Farnall, Esq. E. Hurst, Esq., Viscount Courtney.
Private Secretary to the President, Geo. Buller, Esq.
First Clerk, Mr. Francis Fletcher
Board Clerk and Accountant, Mr. Hugh Owen

ADMIRALTY,
WHITEHALL.

Lords Commissioners, Sir Francis Baring, Rear-Admiral Dundas, Capt. the Hon. F. Berkeley, Captain Lord John Hay, the Hon. Wm. Cowper, Captain Milne
Secretaries, John Parker, Esq., M.P., Capt. W. A. B. Hamilton, R.N.
Private Secretary, Capt. Charles Eden
Chief Clerk, J. H. Hay, Esq.
Hydrographer, Admiral Sir F. Beaufort
Assistant, M. Walker, Esq.
Civil Architect, Colonel Irvine

CIVIL DEPARTMENT, SOMERSET HOUSE.

Inspector-General, Sir W. Burnet
Director-General of Works, Col. Irvine
Storekeeper, Hon. R. Dundas
Surveyor, Sir B. Walker
Assistant Surveyor, — Edye, Esq.
Comptroller of Steam Department, Capt. A. Ellice
Chief Engineer J. T. Lloyd, Esq.
Chief Clerks, J. M. Boddy, J. C. Parkin, W. Leyburn, B. Fosset, Wm. Scamp, Esqs.
Accountant, J. T. Briggs, Esq.
Deputy Accountant, O'B. Woolsey, Esq.
Victualling, J. Meek, Esq.

ROYAL OBSERVATORY,
GREENWICH.

Astronomer Royal, G. B. Airy, Esq., M.A. D.C.L., F.R.S., P.R.A.S., &c.
First Assistant, Rev. R. Main, M.A., F.R.A.S.

ASTRONOMICAL DEPARTMENTS.

Circle Superintendent, J. Henry, Esq.
Transit Superintendent, T. Ellis, Esq
Altitude and Azimuth, E. Dunkin, Esq., F.R.A.S.

MAGNETICAL AND METEOROLOGICA DEPARTMENT.

Superintendent, James Glaisher, Esq. F.R.S., F.R.A.S.

ROYAL HOSPITAL FOR SEAMEN,
GREENWICH.

Governor, Admiral Sir Charles Adam, K.C.B
Lieutenant-Governor, Rear-Admiral Sir James Alexander Gordon, K.C.B.
Captains, G. Moubray, T. Dickenson, T. L. P. Laugharne, W. Cuppage.
Commanders, C. Robinson, W. C. C. Dalyell, J. Corbyn, E. W. Garrett.
Lieutenants, F. Bedford, W. Rivers, M. Fitton, J. W. Rouse, D. O'Brien Casey, B. J. Loveless, J. Dornford, G. M. Monk.
Masters, T. Penrose, H. Smartley.
Chaplains, Rev. J. K. Goldney, Rev. E. Kitson
Medical Inspector of Hospitals, Sir John Liddell, M.D.
Deputy Medical Inspector of Hospitals, Alexander Nisbet, M.D.
Surgeon, James M'Ternan
Dispenser, J. Whitmarsh.
Assisting Dispenser, A. Yair.
Assistant Surgeons, R. F. Cullen, N. Lyttelton, W. T. Domville, V. C. Clarke.

CIVIL DEPARTMENT.

Commissioners, the Earl of Granville (Paymaster-General), the Earl of Carlisle, R. Adm. Sir H. Hart, K.C.H., R. Adm. Sir W. O. Pell, G. Tierney, Esq.
Secretary, J. A. Lethbridge, Esq.

ROYAL HOSPITAL SCHOOLS,
GREENWICH.

Superintendent, Lieut. John W. Rouse
Chaplain, Rev. Geo. Fisher, M.A., F.R.S.
Head Master of the Nautical School, E. Riddle, Esq., F.R.A.S.
Head Master of Upper School, Rev. J. Hill.
Head Master of Lower School, E. Hughes, Esq.

WAR OFFICE,
WHITEHALL.

Secretary at War, Rt. Hon. Fox Maule
Deputy, L. Sulivan, Esq.
Chief Examiner, R. C. Kirby, Esq.
First Clerk, J. Borrow, Esq.
Senior Clerks, J. Sandham, J. Crooms, W. Anderson, T. L. Mattnew, R. H. Stewart, A. J. Moorhead, J. P. Parsey, H. Kendrick, and E. Biddle, Esqrs.
Private Secretary, A. G. Carmichael, Esq.

PAYMASTER-GENERAL'S OFFICE,
WHITEHALL.

Paymaster-General, Earl Granville.
Assistant Paymaster-General, W. G. Anderson, Esq.
Chief Clerks, T. Morris, J. Perrior, and H. A. Harrison, Esqs.

COMMANDER-IN-CHIEF'S OFFICE
HORSE-GUARDS.

Commander-in-Chief, Duke of Wellington
Private Secretary, A. Greville, Esq
Military Secretary, Lieut.-General Lord F. Somerset
Aides-de-Camp, Colonel Hon. C. Anson, Colonel, Marquis of Douro, Capt. Earl of March, Captain Marquis of Worcester
Assistants to Military Secretary, F. H. Lindsay, Esq., F. Fergusson, Esq

ADJUTANT-GENERAL'S OFFICE,
HORSE-GUARDS.

Adjutant-General, Sir J. Macdonald
Deputy, Major-Gen. G. Brown
First Clerk, Richard Cannon, Esq.
Confidential Clerk, E. G. Syms, Esq.

QUARTER-MASTER GENERAL'S OFFICE,
HORSE-GUARDS.

Quarter-Master General, General Sir J. W. Gordon
Assistant, Colonel J. Freeth
Deputy, Major Enoch
First Clerk, T. Marsh, Esq.
Confidential Clerk, J. O'Neil, Esq.

LAW OFFICERS OF THE CROWN.

Attorney-General, Sir J. Jervis.
Solicitor-General, Sir J. Romilly.

ADMIRALTY COURT,
2, PAUL'S BAKEHOUSE-COURT, DOCTORS'-COMMONS.

Judge, Rt. Hon. S. Lushington. D.CL.
Dean of the Arches, the Right Hon. Sir Herbert Jenner Fust.
Registrar, H. B. Swabey, Esq.
Queen's Advocate, Sir J. Dodson, LL.D.
Admiralty Adv., J. Phillimore, D.CL.
Queen's Proctor, F. H. Dyke, Esq.
Admiralty Proctor, W. Townsend, Esq.

JUDGE ADVOCATE-GENERAL'S OFFICE,
35, GREAT GEORGE-ST., WESTMINSTER.

Judge Advocate-General, the Right Hon. Sir David Dundas, M.P.
Deputy, Francis Newman Rogers, Esq., Q.C.
Chief Clerk, William Henry Hughes, Esq.
Second Clerk, Jonathan Scollick, Esq.
Third Clerk, Robert Champneys Mundell, Esq.

BOARD OF ORDNANCE,
86, PALL MALL.

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Surveyor-General, Major-Gen. C.R. Fox.
Clerk, the Hon. G. Anson.
Storekeeper, Sir Thomas Hastings.
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2, WHITEHALL-PLACE.

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Windsor Great Park, Prince Albert.
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Hyde Park, H.R.H. Duke of Cambridge.
St. James's Park, Duke of Cambridge.
Richmond Park, Duke of Cambridge.
Greenwich Park, the Earl of Aberdeen.
Hampton Court, Lady Bloomfield.
New Forest, Duke of Cambridge.
Whittlebury Forest, Duke of Grafton
Waltham Forest, Earl of Mornington.
Wychwood Forest, Lord Churchill.
Dean Forest, Earl of Carlisle.

QUEEN'S MINT,
LITTLE TOWER-HILL.

Master Worker, R. L. Sheil, Esq.
Deputy, J. M. Morrison, Esq.
Comptroller, W. H. Barton, Esq.
Chief Engraver, Wm. Wyon, Esq.
Assistant, Leonard Wyon, Esq.
Chief Medallist, B. Pistrucci, Esq.
Assayer, H. Bingley, Esq.

STATE PAPER OFFICE,
12, DUKE-STREET, WESTMINSTER.

Keeper, Right Hon. H. Hobhouse
Deputy, C. Lechmere, Esq.
Chief Clerk, R. Lemon, Esq.
Junior Clerk, T. Temple, Esq.

PRIVY SEAL,
28, ABINGDON-STREET, WESTMINSTER.

Lord Privy Seal, Earl of Minto
Private Secretary, Hon. C. J. B. Elliot
Chief Clerk, J. G. Donne, Esq.
(By Patent) R. Eden, Esq.
Keeper of Records, R. Eden, Esq.
Clerk, W. Goodwin, Esq.

SIGNET OFFICE,
28, ABINGDON-STREET.

Keepers of the Signet, the Secretaries of State.
Chief Clerks, Rev. W. H. E. Bentinck, C. S. Grey, Esq.
Deputy, T. H. Plasket, Esq.
Keeper of the Records, H. W. Sanders, Esq

TITHE COMMISSION,
9, SOMERSET PLACE.

W. Blamire, Esq., T. W. Buller, Esq., Rev. Richard Jones, M.A.

REGISTRAR OF DESIGNS OFFICE,
4, SOMERSET-PLACE.

Registrar, Clement Johnson, Esq.
Assistant Registrar, Hon. E. C. Curzon
Chief Clerk, J. Hill Bowen, Esq.

COLONIAL LAND AND EMIGRATION COMMISSIONERS,
9 AND 15, PARK-STREET, WESTMINSTER.

T. W. Clinton Murdoch, Esq., Charles Alex. Wood, Esq, Fredk. Rogers, Esq.
Secretary, S. Walcott, Esq.

CUSTOM HOUSE.

Chairman, Sir Thomas Fremantle.
Deputy, the Right Hon. G. R. Dawson.
Commissioners, H. Richmond, Esq., S. G. Lushington, Esq.,—T. P. Dickenson, Esq., F. Goulburn, Esq., C. C. Smith, Esq., Capt. Saurin, Hon. S. E. Spring Rice
Secretary, C. Scovell, Esq.
Assistant, W. Maclean, Esq.
Receiver-General, Sir. F. Doyle
Comptroller-General, W. Dickinson, Esq
Solicitor, J. G. Walford, Esq.
Surgeon, J. O. McWilliam, Esq., M.D.

INLAND REVENUE OFFICES.
EXCISE DEPARTMENT, BROAD STREET, CITY; STAMP AND TAX DEPARTMENT, SOMERSET HOUSE.

Chairman, John Wood, Esq.
Deputy Chairman, J. Thornton, Esq.
Commissioners, Hart Davis, Charles Powlett Rushworth, Thomas Harrison, Henry Frederick Stephenson, Charles John Herries, Alfred Montgomery, Charles Pressly, Esqrs.
Secretary, J. C. Freeling, Esq.
Assistant Secretary, T. Keogh, Esq.
Solicitor, Joseph Timm, Esq.
Assistant Solicitor, Hugh Tilsley, Esq.
Receiver-General, W. T. Thornton, Esq.
Comptroller of Legacy Duties, Charles Trevor, Esq.

METROPOLIS ROADS,
22, WHITEHALL-PLACE.

Secretary, J. L. Panter, Esq.
Surveyor-General, Sir Jas. M'Adam.
Accountant, V. C. Wright, Esq.
Inspector, H. Browse, Esq.
Solicitor, J. W. Lyon, Esq.

OFFICE OF METROPOLITAN BUILDINGS,
6, ADELPHI-TERRACE.

Registrar, A. Symonds, Esq.
Official Referees, W. Hosking, Esq., A. Paynter, Esq., J. Shaw, Esq.
Examiners, Philip Hardwicke Esq., J. Pennethorne, Esq., T. Cubitt, Esq.

GENERAL REGISTER OFFICE,
7 AND 8, SOMERSET-PLACE, SOMERSET HOUSE.

Reg.-General, George Graham, Esq.
Chief Clerk, Thomas Mann, Esq.
STATISTICAL DEPARTMENT.
Superintendent, William Farr, Esq.
RECORD DEPARTMENT.
First Clerk, Edward Edwards, Esq.
Assistant, William Owen, Esq
CORRESPONDENCE DEPARTMENT.
First Clerk, George Sowray, Esq.
ACCOUNTANT'S DEPARTMENT.
First Clerk, Charles Henry Anderson, Esq.

RAILWAY BOARD,
BOARD OF TRADE, WHITEHALL.

Commissioners, the Right Hon. H. Labouchere (President), Earl Granville, Right Hon. Sir E. Ryan.
Secretary, Capt. Harness, R.E.

CITY OFFICERS.

LORD MAYOR.

Elected September 29th—Sworn in November 9th.
The Right Honourable THOMAS FARNCOMBE, Bassishaw.

SHERIFFS.

Elected 24th June—Sworn in 28th September.
Wm. Lawrence, Esq., Alderman. | Donald Nicoll, Esq.

UNDER-SHERIFFS.

J. J. Millard, Esq. | D. W. Wire, Esq.

ALDERMEN.

	When chosen Aldermen.
THE FOLLOWING HAVE NOT PASSED THE CHAIR.	
Musgrove, John, Esq., Broad-street; 18, Old Broad-street	1842
Hunter, William, Esq., Coleman-street; 10, Finsbury Circus ..	1843
Challis, Thomas, Esq., Cripplegate; 32, Wilson-street, Finsbury ..	1843
Sidney, Thomas, Esq., M.P., Billingsgate; 8, Ludgate-hill	1844
Moon, F. G., Esq., Portsoken; 20, Threadneedle-street	1844
Salomons, David, Esq., Cordwainer; 1, Shorter's-court	1848
Finnis, Thomas Quested, Esq., Tower; Tower-street	1848
Lawrence, William, Esq., Bread-street, 30, Bread-street	1848
Carden, William, Esq., Dowgate; 2, Exchange Buildings	1849
THE FOLLOWING HAVE PASSED THE CHAIR.	
Hunter, Sir. C. S., Bart., Bridge Without; 23, Euston-square	1804
Thompson, W., Esq., M.P., Cheap; Upper Thames-street	1821
Key, Sir John, Bart., Langbourn, 3 Abchurch Lane	1823
Laurie, Sir Peter, Knt., Aldersgate; 7, Park-square, Regent's-park ..	1826
Farebrother, C., Esq., Lime-street; 6, Lancaster-place, Strand ..	1826
Copeland, W. Esq., M.P., Bishopsgate; 37, Lincoln's Inn-fields ..	1829
Kelly, T., Esq., Farringdon Within; 17, Paternoster-row	1830
Wilson, Samuel, Esq., Castle Baynard; 24, St. Paul's Church-yard ..	1831
Marshall, Sir C., Knt., Bridge Within; 43, Russell-square	1832
Pirie, Sir John, Bart., Cornhill; Birchin Lane	1834
Humphery, J., Esq., M.P., Aldgate; Hays's Wharf, Southwark ..	1835
Magnay, Sir William, Bart., Vintry; College-hill	1838
Gibbs, Michael, Esq., Walbrook; 33, Walbrook	1838
Carroll, Sir George, Candlewick, 34, Cavendish-square	1840
John K. Hooper, Esq., Queenhithe	1840
Sir James Duke, M.P., Farringdon Without	1840

EAST INDIA COMPANY.

Six Directors are elected annually in April, when six go out by rotation. Each Director serves four years. The figure prefixed denotes the number of years each has to serve.

DIRECTORS.

(2) CHAIRMAN—Major-General Sir Archibald Galloway, K.C.B., 18, Upper Harley-street.

(3) DEPUTY CHAIRMAN—John Shepherd, Esq., Holly Lodge, Walton-on-Thames

(4) Sir Robert Campbell, Bart.
(1) John Loch, Esq.
(1) Charles Mills, Esq.
(2) John Masterman, Esq., M.P.
(1) Henry St. George Tucker, Esq.
(3) Henry Alexander, Esq.
(1) Henry Shank, Esq.
(2) Russell Ellice, Esq.
(2) Sir Richard Jenkins, G.C.B.
(1) John Cotton, Esq.
(2) William Butterworth Bayley, Esq.
(3) Francis Warden, Esq.
(4) Sir Henry Willock, K.L.S.
(4) Sir James Weir Hogg, Bart., M.P.
(1) W. H. Chicheley Plowden, Esq., M.P.
(4) Lieut.-Col. William Henry Sykes.
(3) Major James Oliphant
(4) John Clarmont Whiteman, Esq.
(3) Hon. Wm. Henry Leslie Melville.
(2) Ross Donelly Mangles, Esq., M.P.
(3) Major-Gen. James Caulfield, C.B.
(4) William Joseph Eastwick, Esq.

THE FOLLOWING GENTLEMEN ARE OUT BY ROTATION.

Lieutenant-General Sir James Law Lushington, G.C.B.
George Lyall, Esq,
Elliot Macnaghten, Esq.
John Petty Muspratt, Esq.
Martin Tucker Smith, Esq., M.P.
William Wigram, Esq.

BANK OF ENGLAND.

GOVERNOR—H. J. Prescott Esq.—DEPUTY GOVERNOR—Thos. Hankey, Jun., Esq.

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Henry Wollaston Blake, Esq.
Henry Hulse Berens, Esq.
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William Cotton, Esq.
Bonamy Dobree, Esq.
Charles Pascoe Grenfell, Esq.
John Benjamin Heath, Esq.
John Gellibrand Hubbard, Esq.
George Lyall, Junior, Esq.
James Malcolmson, Esq.
Thomas Masterman, Esq.
Alexander Matheson, Esq.
James Morris, Esq.
Sheffield Neave, Esq.
George Warde Norman, Esq.
John Horsley Palmer, Esq.
John Oliver Hanson, Esq.
Sir John Henry Pelly, Bart.
Thomas Charles Smith, Esq.
William Thompson, Esq., Alderman.
Thomas Tooke, Junior, Esq.
Thomas Matthias Weguelin, Esq.
Francis Wilson, Esq.

LAW COURTS.

CHANCERY.—Lord High Chancellor, Lord Cottenham. Master of the Rolls, Lord Langdale. Vice Chancellor of England, Sir L. Shadwell. First Vice-Chancellor, Sir James L. K. Bruce; Second ditto, Sir James Wigram.

QUEEN'S BENCH.—Lord Chief Justice, Lord Denman. Judges, Sir John Patteson, Sir John T. Coleridge, Sir Wm. Wightman, Sir Wm. Erle.

COMMON PLEAS.—Lord Chief Justice. Sir Thos. Wilde. Judges, Sir Wm. Hen. Maule, Sir C. Cresswell, Sir Edw Vaughan Williams, Sir Thos. N. Talfourd.

EXCHEQUER.—Lord Chief Baron, Sir Frederick Pollock. Barons, Sir James Park, Sir Edw. H. Alderson, Sir Robert M. Rolfe, Sir Thomas J. Platt.

COURT OF BANKRUPTCY.

Birmingham, John Balguy, Q.C., Esq., and Edmund Robert Daniell, Esq.
Liverpool, Ebenezer Ludlow, Esq., Sergeant, and H. J. Perry, Esq.
Manchester, Walter Skirrow, Esq., and Wm. Thos. Jemmett, Esq.
Leeds, Martin John West, Esq., and W. S. Ayrton, Esq.
Bristol, H. J. Stephen, Esq., Serjeant, and Richard Stevenson, Esq.
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